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# MANAGEMENT OF OCCUPATIONAL DERMATOSES

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The subject of occupational dermatoses is of interest not only to dermatologists, but also to the many general practitioners and general surgeons whose patients are employed by industry and in agriculture. The proper management of a patient who presents a cutaneous eruption which may be occupational in origin is important to him and to his employer in several ways: first, in providing symptomatic relief and rapid healing for the patient and in preventing loss of working time; second, in preventing aggravation or recurrence of the eruption; and third, in preventing occurrence of the dermatitis among the other employees who are similarly exposed. This problem requires therefore the understanding and consideration of several factors—namely, the medical management of the patient's dermatosis, the economic factor concerned in the possible loss of time from work (which affects not only the patient's income but also the production in his place of employment), and the medicolegal factor involved in determining whether or not the particular case is compensable under the provisions of the North Carolina Workmen's Compensation Act.

During the twelve-month period ending June 30, 1945, there were 6,870 man-days lost in North Carolina because of occupational dermatoses and irritations of the eye[1]. This loss of time can be reduced by improved cooperation among the parties concerned—namely, the patient, the physician, the employer and his insurance carrier, and the state Industrial Commission. Temporary transfer of the worker to a job which is not irritating to his skin, and the subsequent proper placement of this worker after his dermatosis has healed are essential in preventing loss of time. Some discussion between the physician and the employer (or his personnel director) will be necessary, but the time thus spent is time well invested for all concerned. The subject of pre-employment examinations and placement of workers is too large to discuss at this time, but it should be mentioned that a good number of occupational dermatoses could be avoided if the placement of new workers were guided by a careful pre-employment history and examination, so that those persons with a history or clinical evidence of cutaneous allergy or of a chronic skin disease would not be exposed to substances which are known skin irritants or sensitizers.

In order to assist suitably in the achievement of the above objectives, and particularly in order to facilitate the identification of the skin irritant, the physician should be familiar with the employee's job—not only with his specific duties, but also with his working environment. Therefore, I urge those of you who have frequent contact with this type of patient to visit the industrial plants in your community and to become familiar with the actual working conditions of your patients. After doing so, you will find that often your diagnostic problems (non-occupational as well as occupational) are more easily solved; in addition, you will gain added respect from the workers and employers alike.

Read before the Section on the General Practice of Medicine and Surgery, Medical Society of the State of North Carolina, Virginia Beach, Virginia, May 13, 1947.

1. Sixteenth Annual Statistical Report of Industrial Accidents Reported to North Carolina Industrial Commission, year ending June 30, 1945, Raleigh, N. C. (Note: Occupational Dermatosis and Irritations of the Eye are combined in one category.)

### *Definitions*

The term "occupational dermatosis" is really more a medicolegal than a clinical term. Officially it has been defined as "a pathologic condition of the skin for which occupational exposure can be shown to be a major causal or contributory factor"[2]. It should be noted that this definition does not exclude the aggravation or exacerbation of a *pre-existing* dermatosis by the occupational exposure. The list of compensable occupational diseases in the North Carolina Workmen's Compensation Act includes: "Infection or inflammation of the skin or eyes or other external contact surfaces or oral or nasal cavities due to irritating oils, cutting compounds, chemical dust, liquids, fumes, gases or vapors"[3]. Metallic poisoning; chrome ulceration; epithelioma due to tar, pitch, bitumen, and so forth; blisters due to the use of tools; radium poisoning; and injury by x-ray are also specified. In effect, these provisions cover most dermatoses due to occupational exposure.

It is timely at this point to warn against jumping hastily to a "*post hoc, ergo propter hoc*" conclusion in these cases. The mere fact that a patient's job involves exposure to one of the above substances does not by any means prove that his dermatosis is due to that exposure. The physician should record a detailed history, including the patient's habits and exposures *away* from work as well as those at work, and should perform, or have a consultant carry out, patch tests and other special studies when indicated, *before* rendering his final opinion as to the etiologic agent in each case.

From a clinical standpoint, an occupational dermatosis *is* "dermatitis venenata" or "contact dermatitis." Although the term "contact dermatitis" is perhaps more widely used, "dermatitis venenata," which is synonymous, is the official term designated in the STANDARD NOMENCLATURE OF DISEASE[4]. Both terms denote a skin eruption which originates from external irritation. Andrews has pointed out, however, that this connotation is incomplete, since the same eruption, in some instances, can be produced by the same substance administered internally[5]. It is also known that certain poisonous substances may be absorbed through the skin and produce dermatitis as a systemic manifestation. For example, trinitrotoluene usually produces a dermatitis venenata by external contact and sensitization, but it may also produce a toxic eruption following its absorption directly through the skin. The term "contact eczema" describes a chronic dermatitis venenata; allergic sensitization should be suspected here.

### *Incidence*

Schwartz has estimated that 65-70 per cent of all occupational *disease* in this country is occupational dermatitis[6]. Although this is a high percentage, it should be remembered that we are speaking of occupational *disease* only, excluding injuries. In many plants, dermatitis may be the only occupational disease encountered. The same author has also stated that more than 1 per cent of all the workers in this country suffer from occupational dermatoses, and that the average patient who receives compensation for a dermatosis loses ten weeks from work.

The most recently available data for North Carolina are found in the annual report of the North Carolina Industrial Commission for the year ending June 30, 1945[1]. During this period 820 cases of occupational diseases were reported; 58 per cent of the 11,742 man-days lost therefrom were due to the 653 cases of "infection or inflammation of the skin or eyes," an average of 10.5 man-days being lost per case. (During the same period, 440,504 man-days were lost from occupational *injuries*.) When one considers the various agricultural enterprises in North Carolina, the textile, hosiery, and other manufacturing industries, and the chemical and mining industries, one realizes that the variety of occupational exposures in this state is unusually wide.

I would like briefly to present to you some of the results of a study which I made during a thirty months' period in a shell-loading plant near Charlotte. This plant, owned by the United States Navy and operated by the

2. Lane, C. G. et al.: Industrial Dermatoses; A Report by the Committee on Industrial Dermatoses of the Section on Dermatology and Syphilology of the American Medical Association, J.A.M.A. 118:613-615 (Feb. 21) 1945.
3. The North Carolina Workmen's Compensation Act, issued by the N. C. Industrial Commission, T. A. Wilson, Chairman, Raleigh, N. C., March, 1945, p. 35.
4. Jordan, E. P.: Standard Nomenclature of Disease and Standard Nomenclature of Operations, Chicago, American Medical Association, 1942, p. 129.
5. Andrews, G. C.: Diseases of the Skin for Practitioners and Students, Philadelphia, W. B. Saunders, 1946, pp. 94, 102, 103.
6. Schwartz, L.: The Incidence of Occupational Dermatoses and Their Causes in the Basic Industries, J.A.M.A. 111: 1523-1528 (Oct.) 1938.

**Table 1**

**Incidence of Occupational and Non-Occupational Diseases or Injuries in a Shell Loading Plant during a Twenty-Seven Month Period (Feb., 1943-June, 1945)**

| | |
|---|---|
| Total number of employees | 191,885* |
| Total number of new patients seen | 157,203 |
| With occupational diseases or injuries | 46,902 (29.8%) |
| With non-occupational diseases or injuries | 110,301 (70.2%) |

*This total is the sum of the number of employees on the payroll at the end of each month; the "turnover" was high throughout the twenty-seven months. The average number on the monthly payroll was 7,106; the average number of new patients seen per month was 5,822.

**Table 2**

**Incidence of Occupational and Non-Occupational Dermatitis in a Shell Loading Plant**

| | |
|---|---|
| New patients seen during 27-month period | 157,203 |
| New cases of dermatitis seen during same period | 4,128 (2.62%) |
| New cases of dermatitis seen during 30-month period | 4,429 |
| Occupational | 1,526 (34.4%) |
| Non-occupational | 2,903 (65.6%) |

U. S. Rubber Company, was spread out over several square miles; there were six first-aid stations, in addition to the main dispensary and emergency hospital, in operation twenty-four hours daily. More than 70 per cent of the workers were women, many in the older age groups, and it was necessary to provide more than the usual industrial medical program in order to keep them on the job; all minor injuries were reported and treated, and many minor non-occupational treatments were rendered (table 1).

Many of these employees were exposed, for the first time, to TNT, tetryl, and other skin sensitizers and irritants; yet the overall incidence of dermatitis was just 2.6 per cent (table 2), and only one third of these cases were actually occupational in origin. Visits made to other similar plants revealed that there was great concern over the number of cases of dermatitis, which was routinely blamed on the explosive powders; when careful dermatologic study was conducted, however, more than 50 per cent of these cases, in many instances, were found to be non-occupational in origin. Table 3 shows the occupational causative agents; TNT and tetryl accounted for 60 per cent of this group. Two thirds of all our patients with dermatitis had non-occupational conditions; the ten commonest diagnoses are

**Table 3**

**Causes of Occupational Dermatitis in a Shell Loading Plant**

1526 new cases (3.2% of all new patients with occupational conditions)

| *Cause* | *Incidence* |
|---|---|
| TNT | 39% |
| Tetryl | 20.3% |
| Friction dermatitis | 12% |
| Solvents | 7.7% |
| Other powders | 2.6% |
| Unclassified | 8.5% |
| Undiagnosed | 2.2% |

**Table 4**

**Non-Occupational Dermatitis in a Shell Loading Plant**

**Incidence**
65.6% of all new dermatitis cases seen.
2.6% of all non-occupational conditions.

**Types** (10 commonest)
Dermatitis venenata
Chapped skin and pruritus hiemalis
Heat rash
Fungus infections
Acne vulgaris
Eczema
Folliculitis
Seborrheic dermatitis
Urticaria
Herpes simplex

listed in table 4. Although there is much less exposure to explosive powders now than there was during the war, many industries are developing new chemical products such as resins, plastics, and other compounds, some of which may be skin irritants.

Analysis of a broader study, which included 41,628 cases of occupational dermatoses reported to the U. S. Public Health Service by seven states (including North Carolina), has been published by Brinton and Schwartz[7]. Petroleum products, greases, alkalies, cement, solvents, plants, woods, metals, and metal plating were the responsible agents most often encountered in this series.

## *Case Reports*

I would like to turn now to the presentation of several representative cases.

**Case 1**

A white man, aged 26, had been working as a tire recapper for six months prior to September 24, 1946, when he presented himself with a dermatitis venenata of both hands. During the two months' duration of this eruption he had applied several patent remedies which aggravated the dermatitis, so that his condition was the result of overtreatment superimposed on occupational irritation. The acute phase of the eruption subsided with the use of a 1:30 dilution of Burow's solution in the form of wet dressings.

7. Brinton, H. P., and Schwartz, L.: Dermatitis Cases Reported among Workers in Seven States, Industrial Medicine, 14:617-627 (July) 1945.

Patch tests were then performed; moderate reactions, persisting for seventy-two hours, were produced by rubber cement, buffing rubber, and camelback. The substance which he had found most irritating while at work, however, was a rubber solvent which was a primary irritant; it was probably the original cause of his dermatitis. Since he was unable (or unwilling) to work with protective gloves, it was necessary to remove him from this job in order to bring about healing.

**Case 2**

A 34-year-old white man had worked for six months in the dye house of a hosiery plant when an eruption of his hands occurred. As most of you know, anyone who works in or near a dye house is inclined to attribute all of his ills, particularly any skin eruption, to "dye poisoning." In his work, this man put baskets of stockings in and out of large metal drums through which various dyes and cleaners were run; he also had to remove sample stockings at different periods of each "run," and his hands became wet with these solutions. His eruption had been present three weeks when he came for treatment, and he had noticed that it improved each weekend (he did not work Saturday and Sunday), and became worse again each Tuesday or Wednesday.

Patch tests were negative to all the dyes he came in contact with, but were positive to several of the soap cleansers he used at work. A visit to this plant revealed a new, modern, dye department which was hygienically ideal with one exception: there were several barrels of different cleansers (soap flakes and powders) standing open in a side room. It was the habit of the men to thrust their wet hands down into a barrel of soap and then wash up. This procedure resulted in a high concentration of soap on the skin, and, of course, wasted soap. The superintendent had realized that this situation was undesirable and arranged to correct it.

The patient was transferred to a different job, weighing out batches of all the dyes, and was given a soap substitute to use at work (and at home). His dermatitis cleared up under mild treatment, which included some superficial x-ray therapy, in spite of the fact that he was handling dye powder eight hours daily!

**Case 3**

A white girl, aged 26, had worked for several years at a "finishing plant" and was handling sheets when an eruption occurred on the back of her hands. This is a favorite site for occupational dermatitis of the eczematoid type, but patch tests with the sheets were negative. This finding did not prove that the sheets were harmless, however; in fact, it was necessary to remove this girl from her job in order to obtain healing of her hands. After her hands were well, she returned to the same plant, but on a new job. She had no trouble for three months, when a similar eruption recurred on the hands. Patch tests on this occasion showed positive reactions to four colored rayons and one wool cloth. It was necessary to transfer her again in order to obtain healing of her hands; office work was then recommended.

**Case 4**

An 18-year-old student nurse had had a recurrent eruption of the eyelids for one year. Ordinarily this clinical picture suggests cosmetic sensitization, particularly to fingernail polish; however, this girl used no cosmetics except lipstick. Patch tests were performed with all the drugs and medications she handled; positive reactions were obtained with codeine and "Ketochol." She was removed from contact with all drugs during the treatment period; after returning to floor duty she avoided these two and has had no further trouble.

**Case 5**

A 61-year-old farmer had had a recurring contact eczema of the face, neck, and ankles for more than three years. This always became worse after he worked in the field or walked through weeds, and improved if he stayed indoors. Patch tests were strongly positive to bitterweed, goldenrod, crab grass, and pokeweed. In fact, the reaction to one drop of bitterweed extract extended over the upper half of his back; subsequent tests to 1:100 and 1:1,000 dilutions also gave positive reactions. He is being desensitized with a 1:10,000 dilution of the bitterweed in corn oil.

**Case 6**

A prominent physician consulted me in April, 1946, because of a persistent edema and eczema of the right eyelid of eight weeks' duration; this was associated with conjunctivitis which the ophthalmologists had been unable to cure. In addition, he presented a dorsal eczema of the right fingers. The distribution and eczematous nature of this eruption suggested contact sensitization; the cause was a photographic developer ("Metol") which he handled in very small amounts but almost daily in the processing of electrocardiograms. Strict and complete avoidance of this substance was necessary in order to clear up his dermatitis and to avoid recurrence.

## *Etiologic Diagnosis*

These cases illustrate some of the basic problems in the management of occupational dermatoses; often the solution of such a problem requires a combination of thorough clinical investigation and understanding of the occupational exposure. Employment data are important and should include a description of the job performed, any recent changes in duties or contacts, the length of time the patient has performed this job, and information about similar eruptions in fellow employees. The medical portion of the history should include the date it was first noticed, information about any previous dermatitis, and a list of all things which had been applied to the skin or taken internally. Many patients make their dermatitis worse by applying home or patent remedies; these should always be suspected as well as the occupational exposure. Medicated soaps are commonly used on skin eruptions and usually aggravate the dermatitis. The choice of a skin cleanser is an important matter in any industry; almost any soap or soap-substitute may be irritating under certain conditions. Andrews has stated that the most common injurious agents are soap and water[5]; one should not forget the soaps used by the worker at home.

In considering a group of suspected irritating substances, it is important to recog-

nize those which may be primary irritants. By a "primary irritant" is meant "a substance which will cause dermatitis by direct action on the normal skin at the site of contact, if it is permitted to act in sufficient intensity or quantity for a sufficient length of time."[8] For example, sulfuric acid is ordinarily a primary irritant; but a 1 per cent solution of sulfuric acid might not be a primary irritant. The concentration is often the significant factor. Lists of the common primary irritants in each industry have been published by Weber[9], Schwartz and his coauthors[10], and others. They are distinguished from "secondary irritants," which produce dermatitis only in those persons who have been sensitized to them. Because of the danger of aggravating or causing dissemination of the dermatitis, it is inadvisable to perform patch tests while the eruption is acute; likewise it is dangerous to employ a substance which is a primary irritant in patch tests.

Patch tests, whether positive or negative, have definite limitations. A negative test, for example, may be due to one of several factors: too low a concentration of the test substance; lack of sensitivity or susceptibility at the test site; testing during a refractory period; and inability to reproduce accurately at the test site the working conditions to which the skin is customarily exposed. Heat, friction, humidity, and perspiration play a part in many of these cases, and cannot be reproduced accurately in the office. A false-positive patch test may be elicited by a primary irritant, a secondary irritant in too strong a concentration, or by testing the patient during a period of hypersensitivity or polysensitivity. From a medicolegal standpoint a positive patch test does not in itself incriminate the substance, but is confirmatory evidence if all non-occupational factors have been excluded.

Essential diagnostic criteria have been summarized by Sutton and Sutton[11] as follows:

1. The dermatitis appears at any time during a period of industrial exposure or within three weeks following cessation of the exposure.

2. The eruption disappears or improves after the patient is removed from the causal exposure (provided that none of the irritating material remains on the clothing of the worker).

3. The eruption shows a tendency to recur or to become worse when the worker returns to the identical exposure.

Other criteria include the appearance of the eruption at the sites of maximum exposure, its similarity to the eruptions of other workers who have had the same exposure, and positive patch tests.

### *Treatment*

The first two objectives of treatment are symptomatic relief for the patient and the removal of the patient's skin from the irritating exposure. The use of soap and water is to be avoided except in the period immediately following harmful exposure, when it may be useful to remove the offending agent. Chemical neutralizers are occasionally indicated, as in the case of burns with an acid or alkali. Potassium permanganate is sometimes useful when an oxidizing agent is indicated. Before applying *any* local medication, however, one should remember that the skin has already been damaged, and may not tolerate what it normally would.

In the acute, vesicular eruptions mild, cool wet dressings with boric acid solution, isotonic salt solution, Burow's solution in a 1:15 or 1:30 dilution, or a 1:5,000 dilution of potassium permanganate are usually soothing and healing. In a dry, acute eruption calamine lotion or plain zinc oxide paste may be used. In the subacute or chronic periods, ointments containing 2 to 5 per cent ichthammol or naftalan are useful. If secondary infection is present, wet dressings should be used first, followed by a mild mercury ointment, or ichthammol. After many chemical irritations, a minimum period of two weeks is required by the skin before active healing is noticeable; therefore the physician should not be in a hurry to change to stronger measures every few days. The routine use of sulfonamide or penicillin ointments is inadvisable because of their sensitizing properties.

Internal treatment is occasionally indicated—for example, in the chronic or exten-

8. Schwartz, Louis, and Peck, Samuel: Symposium on Occupational Dermatoses, American Academy of Dermatology and Syphilology, Cleveland, Ohio, December, 1946.
9. Weber, L. F.: External Causes of Dermatitis; List of Irritants, Arch. Dermat. & Syph. 35:129-179 (Jan.) 1937.
10. Schwartz, L., Tulipan, L., and Peck, S.: Occupational Diseases of the Skin, Philadelphia, Lea & Febiger, 1947.
11. Sutton, Richard L., and Sutton, Richard L., Jr.: Diseases of the Skin, ed. 10, St. Louis, C. V. Mosby, 1939, p. 203.

sive cases. Mild sedation may be temporarily necessary in severe, acute cases; Benadryl or Pyribenzamine is sometimes effective, but perhaps chiefly because of the sedative effect. Calcium preparations, given orally or parenterally, are favored by some, while others prefer the intravenous administration of sodium thiosulfate.

Superficial x-ray therapy is effective in selected cases, but should preferably be given by a dermatologist, because of the potentialities for overtreatment and of permanent damage to the skin.

### *Conclusion*

Although it has been impossible to cover all the essential material pertaining to the field of occupational dermatoses and their management, it is hoped that the discussion presented will be of some practical use to the physicians who are concerned with this problem.

### *Discussion*

**Dr. J. M. Hitch (Raleigh):** As Dr. Welton has demonstrated, the problem of occupational dermatitis is no small one. Perhaps the final etiologic diagnosis is largely within the province of the dermatologist, but the original recognition of the probable origin of the dermatosis and its proper management may frequently be the responsibility of any physician.

I am afraid that North Carolina is not as conscious of this problem as are some of the more industrialized Northern states. The fact that the Industrial Commission combines these dermatoses with irritations of the eye is, I believe, indicative of this fact.

With the constantly increasing industrialization of this state, the problem of occupational dermatoses will be greatly magnified in the near future. As a matter of fact, I am certain that official reports for any year reflect only a small fraction of the dermatoses which are truly occupational in origin. In the first place, self-employed individuals, farmers, and the employees of many small, uninsured industrial enterprises rarely have reason to bring their disease to the attention of the Commission. In the second place, I believe that an appreciable portion of those who might well be entitled to compensation fail to apply for it. In my own practice in Raleigh, where there are practically no large industries, I frequently encounter patients with occupational dermatitis, but few of them think of seeking compensation.

Dr. Welton has pointed out that the term "occupational dermatosis" is really a medicolegal one and usually indicates the diagnosis of "contact dermatitis." All of the concepts employed in the diagnosis and treatment of occupational dermatoses can be transposed, therefore, to the larger field of everyday contact dermatitis with benefit. All the factors which are encountered and appreciated daily by the physician engaged in industrial dermatology are equally applicable to the non-occupational cases of contact dermatitis seen frequently by all of us.

The etiologic diagnosis of contact dermatitis is often difficult, but I know of nothing which is more satisfying than to relieve a patient of a chronic incapacitating eczema by discovering an unsuspected contact allergen which can be completely eliminated. It is obvious that the first step in such study is to suspect the true nature of the difficulty. The deductive study necessary to establish the diagnosis of contact dermatitis must begin with a detailed history. The history of exposure must be correlated with the appearance and disappearance of the eruption. If the history is painstakingly obtained, such a correlation usually will become evident to both the physician and the patient. This is time-consuming but is well worth the effort, and all subsequent study is without significance unless predicated on an accurate and full history. As Sulzberger has said, "even the greatest numbers and longest, straightest rows of skin tests will too often prove useless" if done indiscriminately—that is, without an accurate history. If, after a proper history is taken, one has well-founded cause to suspect a contact etiology within a narrow range, he is justified in removing the suspected substance. There is no other equally accurate way of establishing the diagnosis. If, on the other hand, one cannot narrow the field of suspected substances sufficiently by means of the history, I feel that further study by patch testing had better be left to the dermatologist, who is informed on proper dilution and interpretation.

Dr. Welton's cases have illustrated several types of contact dermatitis encountered in industry. The principles of diagnosis and treatment are equally applicable to the non-occupational variety. Probably all of us should become more alert to this rather frequent etiology of acute and chronic eczematous eruptions.

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## ROENTGENOLOGIC CONSIDERATION OF UNILATERAL EXOPHTHALMOS

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Unilateral exophthalmos presents one of the most difficult diagnostic problems in roentgenology. The etiology of this condition is not necessarily similar to that of bilateral exophthalmos. In many instances unilateral exophthalmos is an external manifestation of a definite clinical entity. Spaeth[1] gives the following etiologic classification of unilateral exophthalmos: anatomic, traumatic, inflammatory, that due to disease of the blood and lymph systems, and that due to space-taking lesions. It is in this last group that roentgenography of the orbits[2]

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1. Spaeth, E. B.: Principles and Practice of Ophthalmic Surgery, Philadelphia, Lea & Febiger, 1944.
2. The most complete monograph on this subject is that by Pfeiffer, R. L.: Roentgenography of Exophthalmos with Notes on the Roentgen Ray in Ophthalmology, Am. J. Ophth. 26:724 (July); 816 (Aug.); 928 (Sept.) 1943.

is of the most value.

Roentgenography of the skull has made rapid advances since Caldwell[3], in 1906, described a good technique for visualization of the paranasal sinuses and the orbital walls. There are few reports in the literature of positive roentgenographic demonstration of changes in the orbits. This fact would seem to suggest that such findings are rare. When careful roentgenographic study is made of the orbits, however, numerous conditions can be found.

Table 1 lists the various conditions found in 107 consecutive cases of unilateral exophthalmos studied roentgenologically at Duke Hospital. The diagnosis was made by x-ray in about a third of the cases. Many other conditions have been reported by Spaeth[4] and Pfeiffer[2], as well as by other writers.

**Table 1**

| Diagnosis | No. Cases |
|---|---|
| Mucocele | 11 |
| Orbital or retrobulbar cellulitis or abscess | 9 |
| Meningioma | 9 |
| Lympho-epithelioma | 7 |
| Lymphosarcoma | 6 |
| Cavernous sinus thrombosis | 4 |
| Metastatic carcinoma | 4 |
| Orbital hemorrhage | 3 |
| Hemangioma | 3 |
| Tumors of the lacrimal duct and gland | 3 |
| Sympathicoblastoma | 3 |
| Squamous cell carcinoma | 2 |
| Lymphangioma | 2 |
| Hyperthyroidism | 2 |
| Chloroma | 2 |
| Retinoblastoma | 2 |
| Basal cell carcinoma | 2 |
| Neurofibroma | 2 |
| Schueller-Christian disease | 2 |
| Syphilis | 1 |
| Arteriovenous aneurysm | 1 |
| Aneurysm, internal carotid | 1 |
| Cholesteatoma | 1 |
| Osteoma | 1 |
| Malignant melanoma | 1 |
| Hemangio-epithelioma | 1 |
| Boeck's sarcoid | 1 |
| Congenital retrobulbar cyst | 1 |
| Astrocytoma, optic nerve | 1 |
| Scirrhous carcinoma of orbit | 1 |
| Adamantinoma | 1 |
| Giant cell tumor | 1 |
| Undifferentiated tumors | 3 |
| Undiagnosed cases | 13 |
| | 107 |

### *Anatomy of the Orbit*

The orbital cavity is irregularly cone-shaped, with the apex at the optic foramen posteriorly. The rim of the orbital entrance is made up of dense bone which forms a circle, interrupted medially by the overlapping inferior and superior crests. The fossa between these crests accommodates the lacrimal sac.

The superior wall or roof of the orbit is formed by the orbital plate of the frontal bone and by the lesser wing of the sphenoid. It is dome-shaped, and although its under surface is usually smooth, the cranial surface most often presents a number of digital impressions. The inferior wall or floor of the orbit is formed by the orbital plate of the maxilla, the orbital portion of the zygoma, and the orbital process of the palatine bone. This wall is usually quite thin. The lateral wall, the most solid of all, is formed by the inner surface of the zygoma and the greater wing of the sphenoid. The superior orbital fissure is located in the lateral wall. The thin medial wall is formed by the ethmoid and sphenoid sinus plates.

Roentgenographically the orbital entrance or rim is readily identified as a dense bony structure which forms a ring that is incomplete medially. At this point, where the superior and inferior crests fail to meet anatomically, the roentgen shadow of the ethmoid cells is superimposed upon the orbit. The defect of the orbital entrance medially must not be mistaken for a pathologic destruction of bone.

The roof of the orbit can be studied readily in roentgenograms, but it presents great variations because of the differences in the normal digital patterns. The thickness varies according to the prominence of the digital markings, and great care and experience are necessary in evaluating each orbital roof. In the roentgenogram the sphenoid ridges are superimposed upon the orbital walls, and serve to separate the roof from the lateral wall.

The floor of the orbit shows fairly well in the usual frontal and maxillary sinus projections, and in many instances the intra-orbital groove can be seen very distinctly as it crosses the orbit. The portion of the maxillary sinus which projects upward into the orbit posteriorly is easily viewed and should always be studied with great care.

In the lateral wall lies the cleft of the superior orbital fissure. Many pathologic processes may produce changes in or about this fissure, which often give a clue as to the

3. Caldwell, E. W.: Skiography of the Accessory Sinuses of the Nose. Trans. Am. Q. Roentgenol. 1:27-35, 1906.
4. Spaeth, E. B.: Pathogenesis of Unilateral Exophthalmos, Arch. Ophth. 18:107-148 (July) 1937.

Fig. 1. Panophthalmitis of three weeks' duration, with marked tension. The eye was removed and no bone erosion was found. The pathologic report was ophthalmitis. The roentgenogram shows only soft tissue swelling.

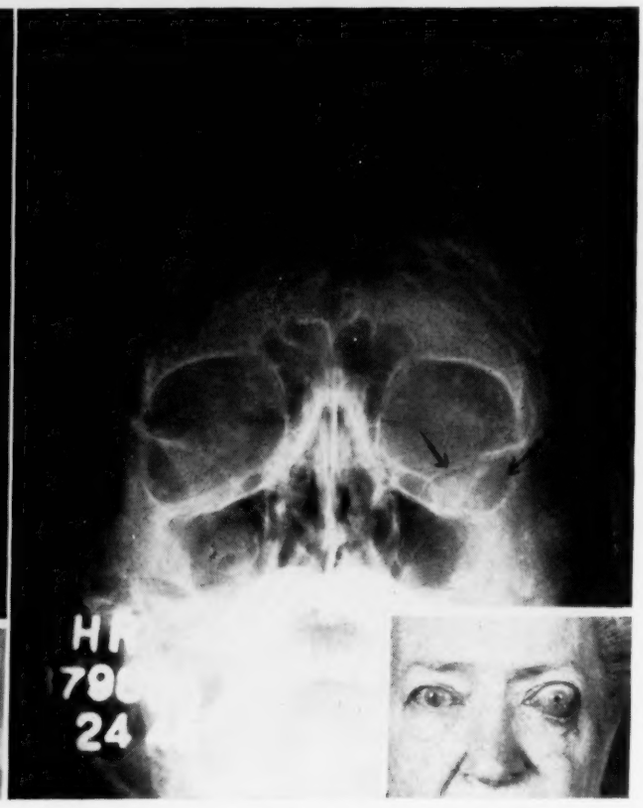

Fig. 2. This patient had a twenty-year history of exophthalmos following an eye infection. The roentgenogram shows bony thickening of the floor of the orbit, apparently pushing the orbit up and outward.

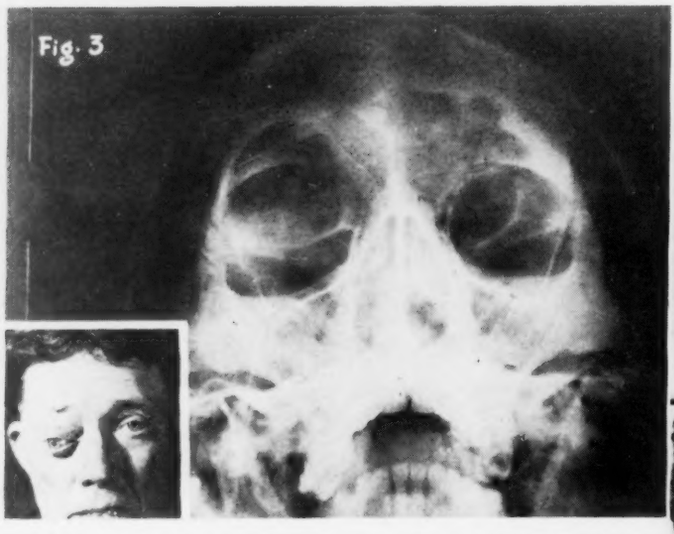


Fig. 3. Large mucocele extending laterad, with erosion of the posterior wall and floor of the orbit.

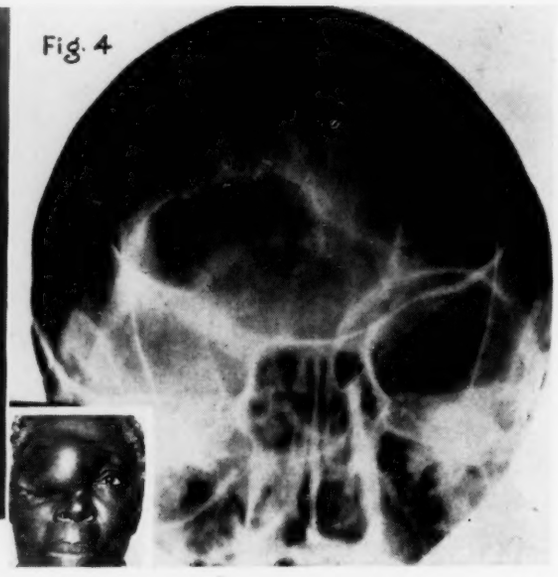


Fig. 4. Large mucocele of the right frontal sinus and orbit. There is a large area of bone destruction extending into the posterior wall of the orbit.

cause of exophthalmos.

Because the orbits may be involved by processes occurring in near or distant structures, it is necessary to be constantly aware of the possibility of extra-orbital lesions producing orbital signs.

*Lymphatic Structure of the Eye*[5]

Very little lymphoid tissue is present in the orbit. The conjunctiva and lacrimal gland are the chief extrabulbar structures that contain any amount of lymphoid tissue. Lymphomatous masses may appear in any portion of the conjunctiva. The conjunctiva possesses lymphatics which make up a superficial and a deep plexus. These form minute plexi at the margin of the cornea, and probably communicate with those of the cornea.

*Differential Diagnosis*

The three most common conditions causing unilateral exophthalmos are trauma, inflammations, and neoplasms. Hyperthyroidism occasionally produces a unilateral exophthalmos. The clinical information is of tremendous importance in the differential diagnosis. The rate of progress of the exophthalmos and the age of the patient will be of assistance in some cases. Generally speaking, the neoplasms appear in the early and late years of life, while inflammatory conditions are most frequent from middle to later life. The exophthalmos frequently becomes bilateral in inflammatory conditions, rarely in tumors.

*Trauma*

*Fractures* in and about the orbit often cause hemorrhage and sometimes secondary infections. Culler[6] found many instances of extensive fractures following minor accidents.

In cases of pulsating exophthalmos, due to *arteriovenous aneurysm*, a history of injury may often be elicited. A cranial arteriogram will usually show the aneurysm.

*Inflammatory conditions*

In the inflammatory conditions the exophthalmos is usually confined to one orbit. The most common of these conditions is *frontal sinus disease. Cavernous sinus thrombosis* and *thrombophlebitis of the orbital veins* often result in ophthalmitis and exophthalmos. Ophthalmitis does not present any characteristic appearance. Figure 1 illustrates an instance of this condition. *Osteomyelitis* involving the orbital fossa will cause displacement of the orbit (fig. 2).

**Fig. 5 (Case 1). Extradural diploic epidermoids. The roentgenogram shows sharp scalloped erosion in the supra-orbital region.**

*Neoplasms*

Exophthalmos is often the first indication of *mucocele* extending into the orbital wall. Figures 3 and 4 illustrate the importance of roentgen study plus careful clinical investigation by a competent rhinologist.

Another group of rather rare cases are the *cysts*, retrobulbar and subperiosteal. Knapp[7] and Anderson[8] have each reported cases of diploic epidermoids. These lesions are thought to be developmental defects of embryologic origin.

**Case 1:** A young white female, aged 24, complained of a gradual loss of vision over the past four years. There was no history of any previous inflammation. The eye showed 5 mm. of exophthalmos. A firm, spongy mass was felt above the eye. Roentgen examination showed a sharply defined bone defect with white scalloped margins (fig. 5). It closely simulated cholesteatoma. The tumor was removed. The pathologic diagnosis was "Extradural diploic defect of epithelial origin arising embryologically due to developmental defects."

*Osteomas* arising in and around the orbit may extend into the orbital fossa. They are readily detected by roentgenograms (fig. 6 and 7).

In cases of *xanthomatosis* (Schüller-Christian syndrome), the tumefactions frequently occur near the orbit, resulting in orbital

5. Reeves, R. J.: Lymphoblastoma (Hodgkin's Disease) of the Orbit, Am. J. Roentgenol. 17:642-645 (June) 1927.
6. Culler, A. M.: Fractures of the Orbit, Tr. Am. Ophth. Soc. 38:348-369, 1940.
7. Knapp, A.: Oil Cyst of the Orbit, Arch. Ophth. 52:163-165 (March) 1923.
8. Thornhill, E. H. and Anderson, W. B.: Extradural Diploic Epidermoids Producing Unilateral Exophthalmos, Am. J. Ophth. 27:477-483 (May) 1944.

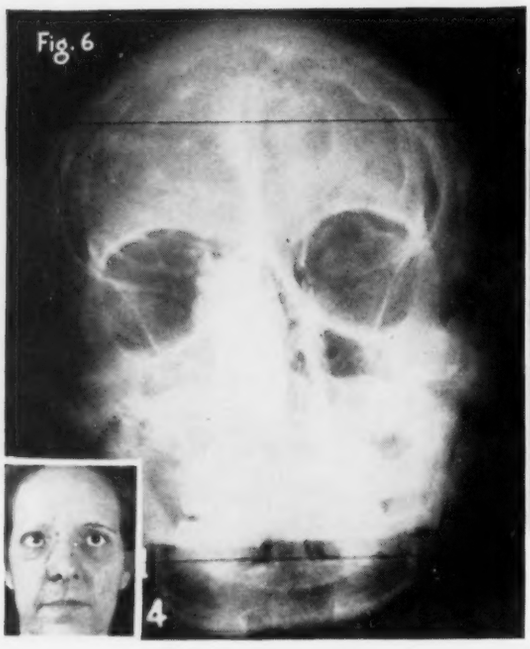

Fig. 6. Large osteoma of the nasal passage, involving the anterior and posterior ethmoids and partly blocking the right antrum. There was 5 mm. of exophthalmos.

Fig. 7. After removal of the osteoma, exophthalmos has disappeared.

Fig. 8. Schueller-Christian xanthomatosis, with bone destruction in the left supra-orbital region and moderate exophthalmos.

Fig. 9. Bone regeneration following roentgen therapy to frontal region.

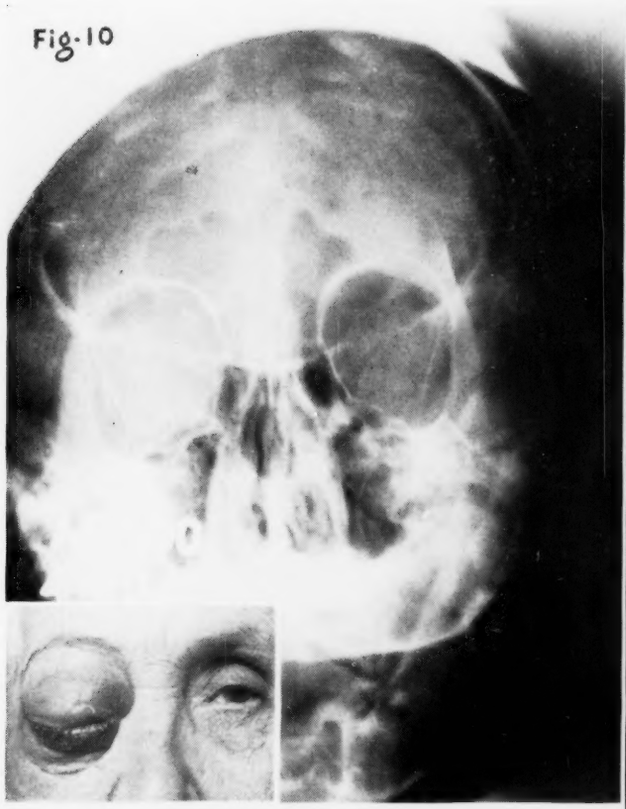


Fig. 10. Lymphosarcoma of the right orbit, with moderate enlargement of the orbital fossa. Enucleation was performed.

Fig. 11. A 2½-year-old child with a three-month history of exophthalmos. The eye was removed, and a retinoblastoma was found. The growth recurred rapidly.

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Fig. 12 (Case 2). Glioma of the optic nerve, with a moderate degree of exophthalmos. The roentgenogram shows marked erosion of the optic canal.

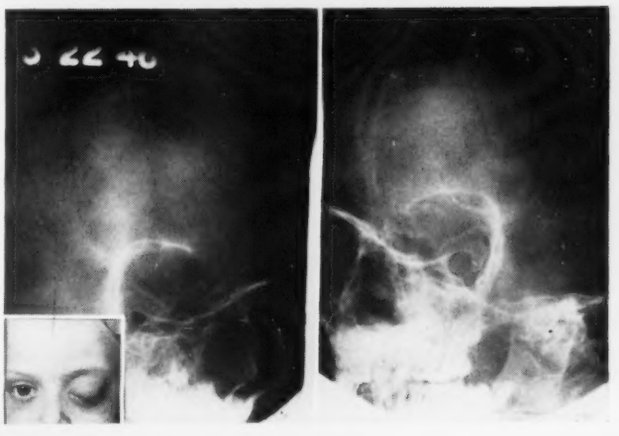

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Fig. 13 (Case 3). Spongioblastoma polare of the optic nerve, with marked erosion of the optic canal. This is a very slow-growing tumor.

Fig. 14 (Case 3). A roentgenogram made five years after removal of the tumor shows almost normal regeneration of the optic canal.

Fig. 13

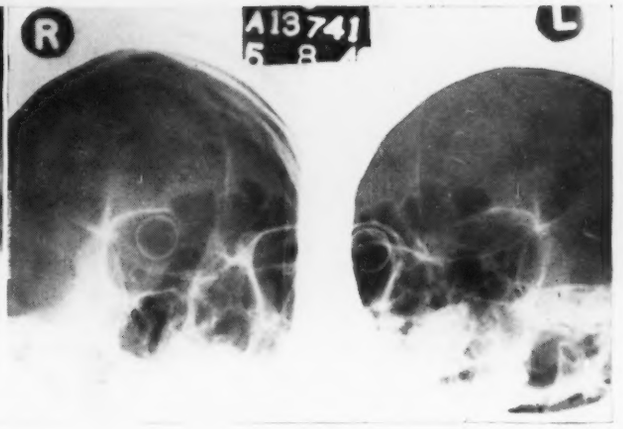


Fig. 14

pressure. Roentgenographically, the sharply punched-out areas of bone rarefaction are typical of this condition (fig. 8 and 9).

*Lymphomas and lymphosarcomas* (fig. 10) often present no typical picture. We have strongly advocated roentgen therapy to the orbit before enucleation is considered[5]. In many cases, after the eye is removed, a recurrence of lymphoma is found in the other orbit.

In young children, *retinoblastoma* is a fairly common tumor (fig. 11). Films taken to show the sphenoid fissure often reveal calcium deposits in the globe, which give the clue to the diagnosis. The orbit may be removed, but recurrence is usually rapid.

In *glioma* of the optic nerve or chiasm, roentgenography is most important. The finding of an enlarged optic canal is diagnostic if retinoblastoma and neurofibroma have been excluded. In this condition routine films of the optic foramina show a concentric enlargement due to the pressure erosion.

**Case 2:** A 5-year-old white girl was brought in for examination because of prominence of the left eye (fig. 12), and gradual loss of vision. The disc showed marked atrophy. At operation a tumor was found infiltrating the optic nerve; it did not extend into the orbit, however. The tumor was removed from the nerve and the eye was left intact. The pathologic diagnosis was "glioma, optic nerve."

Another similar tumor, *glioblastoma* (spongioblastoma polare), presents the same type of exophthalmos. The optic canal is similarly eroded.

**Case 3:** A 3-year-old colored girl was brought for examination because of unilateral exophthalmos of eight months' duration. The eye was rotated outward and downward (fig. 13). Visual acuity could not be determined. The roentgenogram showed marked enlargement of the optic foramen. The eye was enucleated and a tumor measuring 1.5 by 3.6 cm. was found infiltrating the optic nerve. The pathologic diagnosis was "spongioblastoma polare of the optic nerve." Another roentgenogram made five years later showed almost normal regeneration of the optic canal (fig. 14).

**Fig. 15 (Case 4). Basal cell carcinoma producing erosion of bone above and just lateral to the left orbit and involving the lateral portion of the frontal sinus on that side. The area is fairly well circumscribed and there is no unusual amount of reaction surrounding it. The rim of the orbit in this area, as well as the lateral and inferior walls, is involved. There appears to be some erosion of the upper wall of the left antrum, but it is not entirely destroyed. The left malar bone is almost completely destroyed.**

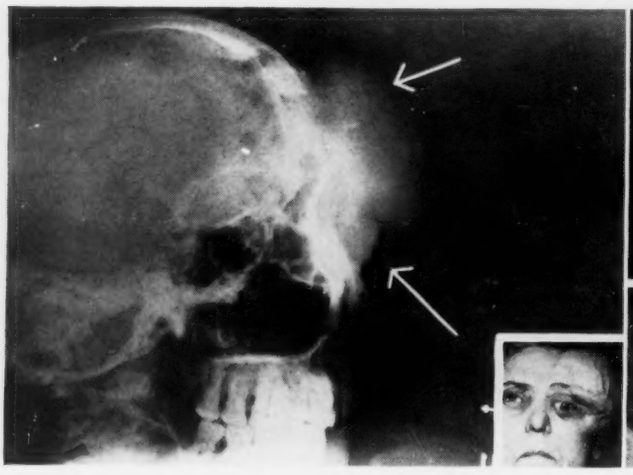

**Fig. 16. Carcinoma of the skull, possibly metastatic. The roentgenogram shows extensive bone destruction as well as a soft tissue mass.**

**Fig. 17. Meningioma of the sphenoid ridge extending into the posterior orbital wall. The roentgenogram shows marked condensation of bone.**

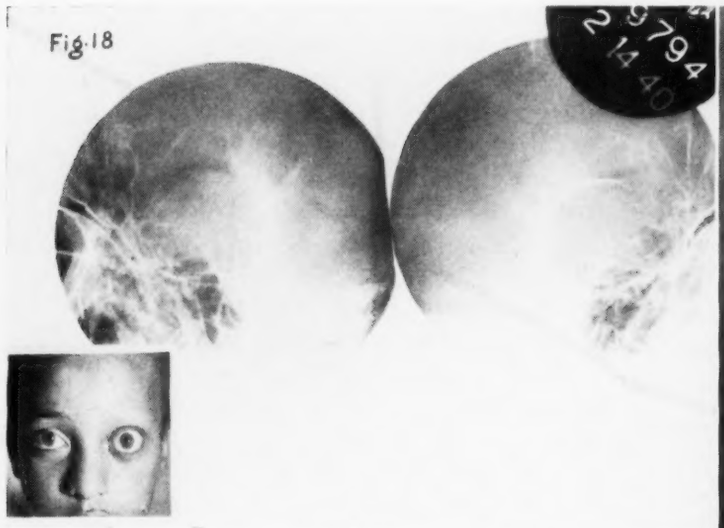

**Fig. 18 (Case 5). Unilateral exophthalmos secondary to hyperthyroidism.**

**Fig. 19 (Case 5). The same patient five years after thyroidectomy. Most of the exophthalmos has disappeared. There are no intra-orbital changes.**

Advanced basal cell *epithelioma* extending into the orbit may produce erosion of bone which may be recognized roentgenographically (fig. 15).

**Case 4:** A 65-year-old woman was seen in 1942 for treatment of an ulcerating mass under the left eye (fig. 15). She had had a tumor mass beneath the eye for eight years, but only during the past year had it extended into the eye. A biopsy showed a basal cell epithelioma, and roentgen therapy (4000 r) was given. She returned three years later complaining of a hole in the floor of the orbit extending up along the lateral wall. The eye was enucleated and malignant tissue removed.

*Metastatic carcinoma* around the orbits often produces exophthalmos. These lesions usually are rapidly growing and are fairly radiosensitive (fig. 16).

*Meningioma* arises in the arachnoid. It is frequently located in areas around the orbit, where the tumor may involve the optic nerve, the sphenoid ridge, the tuberculum sellae, and the olfactory groove. Meningioma displays a tendency to produce hyperostosis, which in turn may cause exophthalmos (fig. 17). Hyperostosis is particularly common in meningioma of the sphenoid ridge.

### *Hyperthyroidism*

**Case 5:** A 13-year-old colored girl was seen in 1938 complaining of increasing exophthalmos of three years' duration (fig. 18). She had been struck in the eye by a stone four years previously. On admission the basal metabolism was +26. Thyroidectomy was performed, and three years later the metabolism was −5. There had been considerable reduction in the degree of exophthalmos (fig. 19).

### *Conclusion*

Trauma, inflammatory conditions, and tumors are the three most frequent causes of unilateral exophthalmos. Roentgenography is of considerable aid in the diagnosis of tumors within the orbit. In most cases of unilateral exophthalmos, however, the greatest value of the roentgen ray is in eliminating extra-orbital conditions as possible causes of exophthalmos.

### *Discussion*

**Dr. Guy Odom (Durham):** There are a great number of cases of unilateral exophthalmos in which the x-ray examination does not reveal any definite changes whatsoever. I'd like to ask Dr. Reeves whether he has any information on the percentage of cases in which a diagnosis can be made by x-ray.

**Dr. Reeves:** I would say that in only about 25 to 30 per cent of the cases can we make a definite x-ray diagnosis. I am not sure that the percentage would run that high if we didn't see the patient or know anything at all about the history. If we knew nothing about the case at all except the x-ray findings, mucoceles and some of the optic foramen lesions are probably about the only ones in which we could attempt to make a diagnosis.

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**Humanity has always shunned responsibility.** Even today, though there is widespread intellectual acceptance of the concept that much disease is preventable, the emotional attitude is not much altered and illness is considered an intrusion, a misfortune due to factors beyond control of the individual. As a whole we have not yet awakened to the idea that the health of men and women is their own responsibility.—Edward J. Stieglitz, M.D., A Future for Preventive Medicine, The Commonwealth Fund, 1945.

# CHANGING CONCEPTS IN THE TREATMENT OF TOXIC GOITER

RUSSELL O. LYDAY, M.D.

GREENSBORO

Although numerous surgeons on this continent have made valuable contributions to thyroid surgery, the names of W. S. Halsted and C. H. Mayo are synonymous with the early development of goiter surgery in America. Halsted's "Operative Story of Goitre"[1] is considered one of the most complete historical works on this subject.

### *Anoci-Association*

Motivated by the tragedies that had occurred during and following operations for severe hyperthyroidism, Dr. George Crile, Sr., in 1912, instituted a form of attack known as anoci-association. Light nitrous oxide-oxygen anesthesia was given to the patient in his room to determine how much, if any, reaction occurred. Later a polar ligation was carried out, or possibly one lobe resected, and so, by stages, a bilateral resection was accomplished. Dr. Crile's reputation as a goiter surgeon and the success he attained with this method are proof that it was an important contribution to the surgical treatment of hyperthyroidism.

### *Iodine*

In 1922 H. S. Plummer proved the value of administering iodine preoperatively to patients with hyperthyroidism. This development was indeed a forward step. Many patients who were unable to withstand an operation, even in multiple stages, without great hazard, could be prepared in two or three weeks for a one-stage procedure. Following this treatment the incidence of polar ligations for primary hyperthyroidism dropped to a very low level, as did the mortality in this disease.

For the succeeding twenty years iodine solutions, x-ray irradiation, and boiling water injections were used to prevent reactions from operations on patients with toxic goiter. Some of these measures, alone or in combination, were employed with the hope of curing thyroid disease without surgery. Isolated instances of prolonged remissions and apparent cures were reported, but the value of these methods as curative agents has never been fully accepted.

As valuable as iodine is in the preparation of patients with toxic goiter for operation, some individuals, in my experience, do not respond satisfactorily to this drug. This failure of response is by no means limited to that group of patients who have taken repeated courses of iodine and are considered "iodine-fast."

### *Thiouracil and Propylthiouracil*

In 1942 another era dawned as the result of Astwood's work with thiourea and thiouracil. Although these anti-goiter drugs are fraught with danger because they may produce neutropenia and agranulocytosis, his work is monumental.

Barteis and Bell have reported on the use of thiouracil at the Lahey Clinic in the preoperative treatment of 400 patients with severe hyperthyroidism[2]. In this series there was one postoperative death and one death from agranulocytosis due to the drug. These authors stated emphatically that, irrespective of the type and severity of the hyperthyroidism or the physical depletion of the patients, they were all restored to a normal state of health before operation. This was indeed encouraging news to the surgeon who must deal with severely toxic and thyrocardiac patients with serious complications.

Recently, propylthiouracil has been more generally employed in the preparation of patients with toxic goiter for operation and as a curative agent in selected cases of primary hyperthyroidism. It appears to be a valuable drug, when used alone or in combination with iodine, in aged patients with complications that render operation inadvisable or impossible. Bartels has reported a series of 300 cases treated with propylthiouracil[3]. Only one non-fatal case of agranulocytosis developed in this large series. Clinicians from other medical centers have reported similar results.

Although thiouracil and propylthiouracil produce hyperplastic changes in the gland,

Read before the Section on Surgery, Medical Society of the State of North Carolina, Virginia Beach, Virginia, May 14, 1947.

1. Halsted, W. S.: The Operative Story of Goitre, Baltimore, Johns Hopkins Press, 1919.
2. Bartels, E. C. and Bell, G. O.: Thiouracil: Preoperative Use in 400 Patients with Severe Hyperthyroidism, Western J. Surg. 55:39-49 (Jan.) 1947.
3. Bartels, E. C., in paper read before the Am. Assoc. for the Study of Goiter, Atlanta, Ga., March, 1947.

the formation of thyroxin is decreased. Therefore the hyperthyroidism gradually subsides, with a parallel lowering of the basal metabolic rate. Myxedema may result from the continued use of thiouracil, but it has been reported that this condition does not develop with the prolonged use of small doses of propylthiouracil.

My experience with thiouracil covers a period of almost three years. It has enabled me to operate successfully upon cases which I previously considered inoperable, and to perform in one stage a radical resection that would have required multiple stages with iodine preparation alone. During this period no serious reactions to the drug have been encountered. Even though I have used thiouracil almost constantly since July, 1944, it has been administered, with a few exceptions, only to those patients who did not respond satisfactorily to iodine.

For the past five months I have been using propylthiouracil. I have observed, as others have pointed out, that its action, even in doses of 200 to 300 mg. daily, may be slower than that of thiouracil in the recommended dose of 600 mg. daily. It is a general observation that patients with secondary hyperthyroidism, or with toxic adenomatous goiter, require a longer period of treatment with these antithyroid drugs than do patients with exophthalmic goiter. At the present time many clinicians are combining iodine with propylthiouracil from the beginning, lest the severely toxic patient develop a crisis during the early stages of treatment with this drug.

### *Radioactive Iodine*

Another antithyroid preparation, radioactive iodine, is now being used both in selected cases of hyperthyroidism and in thyroid malignancies. In a series of 22 patients with hyperthyroidism Chapman and Evans[4] found that this substance destroyed the parenchyma of the thyroid gland in six to eight weeks. Seidlin, Marinelli, and Oshry[5] found it to be an effective therapeutic agent in controlling multiple functioning metastatic lesions in cases of adenocarcinoma of the thyroid where x-ray irradiation was ineffective.

4. Chapman, E. M. and Evans, R. D.: The Treatment of Hyperthyroidism with Radioactive Iodine, J.A.M.A. 131: 86-91 (May 11) 1946.
5. Seidlin, S. M., Marinelli, L. D., and Oshry, E.: Radioactive Iodine Therapy, J.A.M.A. 132:838-847 (Dec. 7) 1946.

### *Surgery*

Improvement in the technique of thyroid surgery has kept pace with other advances. Notably through the teachings of Dr. Frank H. Lahey, radical resections can now be performed with less danger of recurrent nerve injury, fewer instances of postoperative tetany, and fewer recurrences.

### *Summary*

1. Iodine remains a most valuable drug in the preparation of the patient with toxic goiter for operation.

2. Our present experience with thiouracil and propylthiouracil indicates that the great surgical hazard can be eliminated in patients suffering from severe hyperthyroidism that cannot be controlled by other measures. If one of these drugs is administered preoperatively in combination with iodine, a more radical and deliberate operation may be performed which will result in fewer complications and fewer recurrences.

3. Thiouracil, propylthiouracil, and radioactive iodine appear to be of value as curative agents in selected cases of toxic goiter.

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## THE STERILIZATION OF THE MENTALLY HANDICAPPED IN NORTH CAROLINA

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RALEIGH
*and*
CLARENCE J. GAMBLE, M.D.
MILTON, MASSACHUSETTS

North Carolina is one of the forward-looking states in which sterilization of psychotic, feebleminded, or epileptic individuals can be carried out in suitable cases at state or county expense. Cases in which there is a hereditary tendency to serious physical, mental, or nervous disease or deficiency are to be reported by the head of any state institution or by the county superintendent of welfare to the Eugenics Board of North Carolina. If, after a careful review, sterilization appears indicated, this is ordered by the Eugenics Board and carried out by the institution or county authorities. Appeal to the courts is possible if the patient or his family disagrees with the recommendation. When it is under-

**Table 1**

**Sterilizations under Eugenic Sterilization Laws per 100,000 Population**

| Because of Insanity | | | | Because of Mental Deficiency | | | |
|---|---|---|---|---|---|---|---|
| | Total to Jan. 1, 1947 | | In 1946 | | Total to Jan. 1, 1947 | | In 1946 |
| Cal. | 141 | Va. | 3.0* | Del. | 151 | Del. | 10.2* |
| Kan. | 116 | Cal. | 2.4* | S. D. | 107 | Utah | 9.5* |
| Va. | 102 | Kan. | 2.0* | Cal. | 84 | Ind. | 5.0* |
| Del. | 97 | N. H. | 1.2* | Ore. | 80 | Ore. | 3.7* |
| Ore. | 59 | N. D. | 1.0* | Va. | 76 | N. D. | 3.7* |
| N. D. | 56 | Iowa | 0.9 | Utah | 66 | Cal. | 3.6* |
| N. H. | 41 | Ga. | 0.9 | Minn. | 62 | S. D. | 3.4* |
| Conn. | 23 | Miss. | 0.7* | N. D. | 58 | Vt. | 2.8* |
| Miss. | 22 | S. D. | 0.5 | N. H. | 55 | Mont. | 2.6* |
| Utah | 15 | Ind. | 0.4* | Vt. | 53 | Va. | 2.2 |
| Iowa | 15 | Ore. | 0.4 | Wis. | 47 | N. C. | 2.2* |
| Ind. | 14 | N. C. | 0.3 | Kan. | 47 | Kan. | 2.1* |
| Minn. | 13 | Mich. | 0.2* | Neb. | 41 | Ga. | 1.2 |
| Okla. | 13 | Utah | 0.2* | Mich. | 39 | Me. | 1.1* |
| Neb. | 11 | Minn. | 0.03 | Ind. | 34 | Mich. | 1.0 |
| N. C. | 10 | | | Mont. | 33 | Neb. | 1.0 |
| Mont. | 7 | | | N. C. | 32 | Iowa | 0.8* |
| Mich. | 6 | | | Me. | 16 | Wis. | 0.7 |
| Ga. | 6 | | | Iowa | 11 | N. H. | 0.6 |
| Ariz. | 4 | | | Okla. | 11 | Miss. | 0.1* |
| Vt. | 3 | | | Ga. | 10 | Minn. | 0.03 |
| Me. | 2 | | | Conn. | 5 | | |
| Ida. | 2 | | | S. C. | 4 | | |
| S. D. | 2 | | | Miss. | 2 | | |
| W. Va. | 1 | | | W. Va. | 0.5 | | |
| | | | | Idaho | 0.3 | | |
| Average for 27 states having sterilization laws | 39 | | 0.8* | Average for 27 states having sterilization laws | 42 | | 1.8* |

*1946 rate greater than 1945.

Compiled from the reports of the Human Betterment Foundation and of Birthright, Inc. Populations extrapolated from 1930 and 1940 censuses.

stood, however, that tubectomy gives the needed protection without change in sexual characteristics, it is almost invariably welcomed.

Statistics collected by the Human Betterment Foundation of California and by Birthright, Inc.[1], show that there were 1827 sterilizations in North Carolina from the time the law was passed in 1933 until January 1, 1947. The fundamental reason for sterilization was mental disease in 385 cases and mental deficiency in 1214. Of the 105 tubectomies in 1946, 12 were for mental diseases, 83 for mental deficiency, and 10 for other causes.

*Comparison with Other States*

To compare the extent of the protection which North Carolina has given its mentally handicapped citizens with that in other states, the numbers of sterilizations per 100,000 population have been calculated for each state from which data are available (table 1). In the proportionate number of tubectomies performed because of psychosis, North Carolina, with 10 per 100,000 since the passage of the law, occupies seventeenth place among the states. The corresponding value of 0.3 for the twelve sterilizations in 1946 places the state slightly higher—in twelfth place. In both comparisons, however, the proportionate number of sterilizations for psychosis in North Carolina is less than half of the average for the twenty-seven states which have sterilization laws. A somewhat larger number of insane patients—23—were protected in 1945[2].

The number of cases in which the operation was performed because of mental deficiency is much greater—32 per 100,000 since the law was passed, and 2.2 per 100,000 in 1946. The first of these figures is below the average for the twenty-seven states, and gives North Carolina thirteenth

1. Birthright, Inc., Princeton, N. J., Publication No. 5.

2. Richardson, William P., and Gamble, Clarence J.: The Sterilization of the Insane and Mentally Deficient in North Carolina, North Carolina M. J. 8:19-21 (Jan.) 1947.

place; the second is slightly above the average, and gives our state eleventh position. Eighty-three feebleminded persons were protected in 1946, as compared with 80 in 1945.

### *Inadequacy of Present Sterilization Program*

That the number of operations is inadequate to meet the needs of the mentally handicapped in North Carolina is suggested by the following considerations. In the biennium ending June 30, 1944—the most recent for which statistics are available — North Carolina's three state hospitals reported 2716 first admissions for psychosis and 1231 deaths. The difference of 1485 approximates the number of patients with psychosis who were discharged for the first time. This is more than eighteen times the 79 sterilizations performed in these hospitals during the same

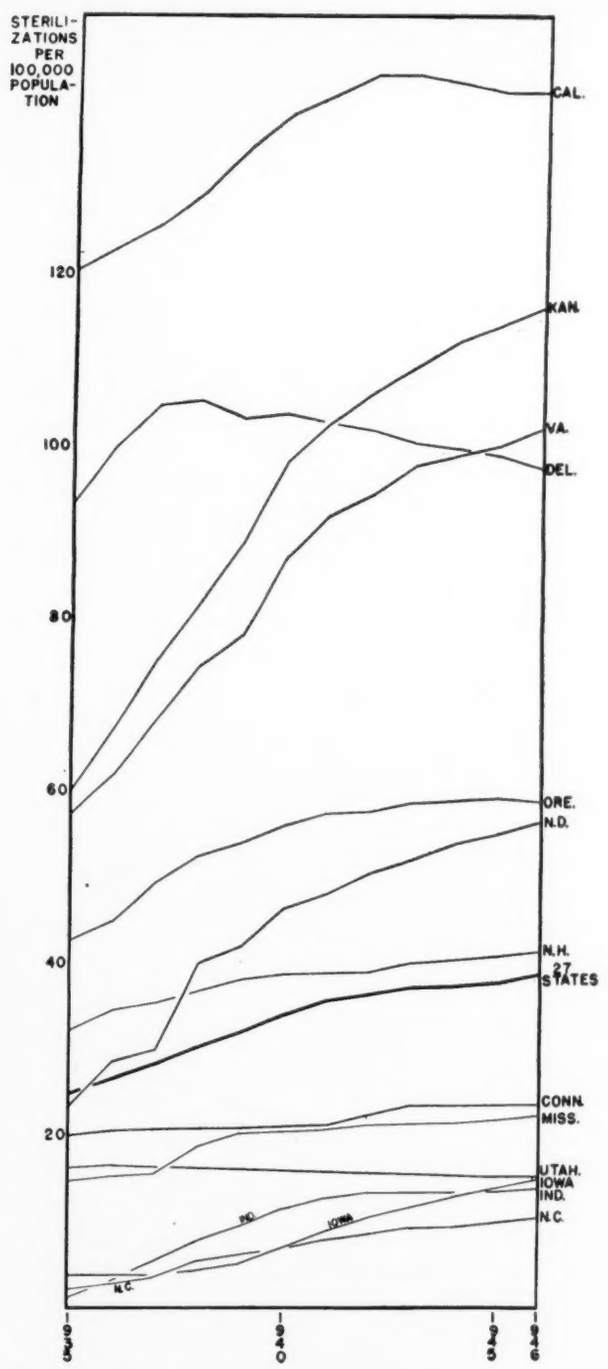


Fig. 1. Sterilizations of the insane reported by state institutions since the passage of the sterilization laws.

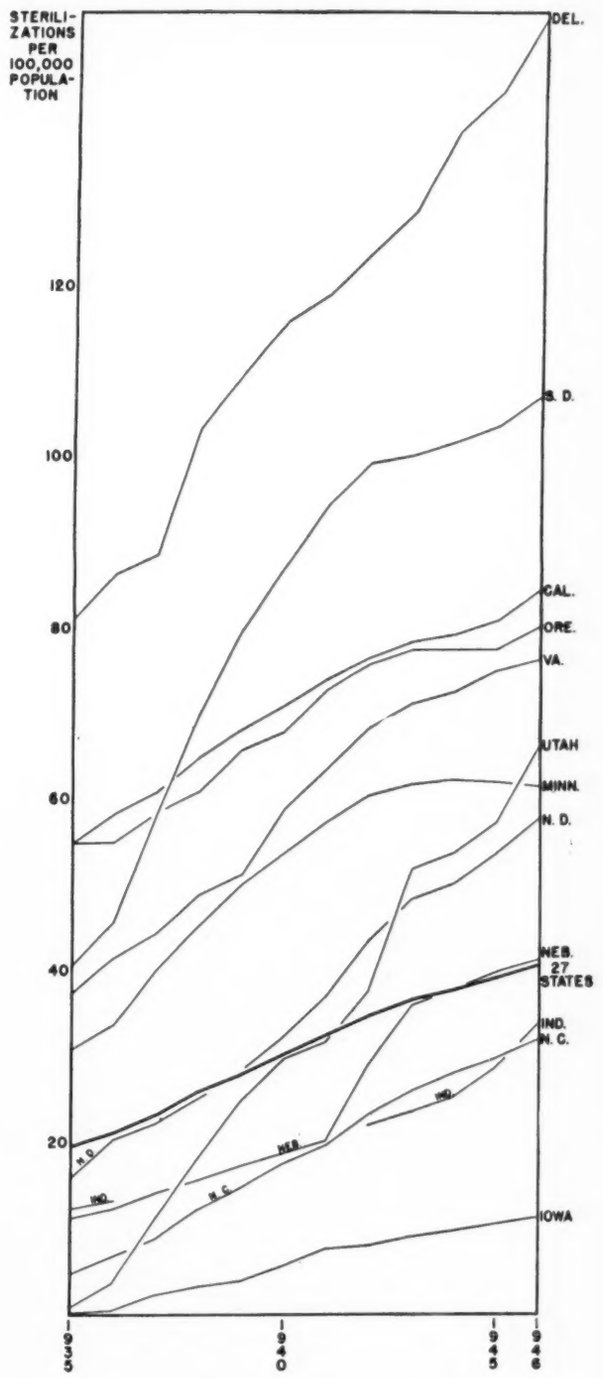


Fig. 2. Sterilizations of the mentally deficient reported by state institutions since the passage of the sterilization laws.

period. While not all the discharged patients were in the fertile age or suffered from a permanent form of psychosis, it is highly probable that more than 1 in 18 should be candidates for protective sterilization.

It is not possible to make a comparable estimate of the problem of the mentally deficient from the population of the Caswell Training School. Because of its limited capacity[3] it must care chiefly for the idiots and the imbeciles—persons not apt to become parents. It cannot, therefore, receive for brief periods of training many morons who, if protected from parenthood, might make a satisfactory place for themselves in the community. During the biennium ending June 30, 1944, there were only 58 persons discharged, all of whom had been in the school more than five years and the majority eigteen years or more. During the same two-year period 33 persons were sterilized at the Training School. As in the case of the psychotic patients, age or other considerations may have made sterilization inappropriate for some of those discharged from the Training School.

A more accurate indication of the magnitude of the problem lies in the estimate of a North Carolina Committee on the Problem of the Feebleminded[4] that 2 per cent of the state's inhabitants are mentally deficient. This estimate indicates that there are more than 70,000 feebleminded individuals in the state and that there will be at least 1,400 new cases each year. This number is seventeen times the 83 mentally deficient persons protected by sterilization operations in 1946.

The protection of future generations from the transmission of insanity and feeblemindedness has seemed so important to the North Carolina legislature that, at its last session, it appropriated funds for a full-time secretary of the Eugenics Board. Miss Elsie L. Parker was appointed to fill this position, and took up her duties on July 24, 1947.

*Responsibility of the Medical Profession*

A special study of the sterilization problem was recently made in one North Carolina county. This showed that the greatest obstacle to the protection of persons for whom the operation is appropriate is the failure of the patients and their families to understand that the operation has no effect other than the prevention of parenthood. For that failure the medical profession is at least partly responsible. If each physician will let his patients know that sterilization is not castration and does not change sexual functions or reactions, it will greatly facilitate the protection of present and future generations from the perpetuation of mental disease and mental deficiency.

3. The realization of the inadequate size of the Caswell Training School led the North Carolina Legislature to make an appropriation for an expansion, which is planned to begin in the near future.

4. Report of the Committee on Caswell Training School in Its Relation to the Problem of the Feebleminded of the State of North Carolina, Raleigh, 1926.

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## THE USE OF FORCEPS IN OBSTETRICS

W. L. THOMAS, M.D.

DURHAM

Obstetric care properly begins with the first prenatal visit of the patient, and is both prophylactic and remedial. A complete physical examination and history are obtained at the first visit, and impressions are formed concerning the possible necessity for an operative delivery. Good prenatal care with watchful expectancy brings the patient to the time of her labor in the best possible physical condition.

*Definition of Terms*

After the onset of labor, the physician simply studies the processes of nature and determines when, where, and how he may be of assistance. He must remember that he never can be of "assistance" unless something goes wrong. "Meddlesome" midwifery is mentioned only to be condemned. If the progress of labor goes wrong, he makes up his mind to interfere. Then he studies what he must do, and when he should do it. Any development in the course of labor which demands some form of interference or treatment is called an *indication*. The many features of each obstetric case which determine or specify the nature of the procedure to be done we call *conditions*. A condition, thus, is a prerequisite to be fulfilled before the procedure demanded by the indication can be carried out.

Read before the Fifth District Medical Society, Southern Pines, April 17, 1947.

From the Department of Obstetrics and Gynecology, Duke University School of Medicine, Durham, North Carolina.

Broadly speaking, all indications for interference lie in the presence of immediate or prospective danger to mother or child. The conditions will be found in the state of the mother at the time of the intended treatment. Only when the conditions or prerequisites are met should we act. Rarely, the indication may be so strong that it becomes necessary to "force the condition." For example, a woman is bleeding profusely. The indication is to empty the uterus, but the cervix is only one finger dilated. A condition or prerequisite for rapid delivery is a completely dilated cervix; therefore, we must first open the cervix, or choose another procedure such as a cesarean section. A condition which absolutely prevents a given line of treatment is called a *contraindication.*

### *"Operative Furor"*

Obstetric operations require a clear head, a stout heart, and a steady hand. Too frequently they result in irreparable damage to either the mother or the infant. Loss of sleep, sympathy for the patient, and the pleas of an anxious husband or family that something be done wear on the doctor's nerves. These factors, plus a tremendous urge that De Lee calls "operative furor," deprive him of his judgment, and his only thought is to pull out the child regardless of everything else. I believe that most of us have experienced this operative furor, with resulting damage to the infant or mother, or both. I have been forced to fight this frenzy to operate, and have been greatly helped by two Latin mottoes which are painted on the walls in the delivery rooms of the Chicago Lying-In Hospital: "*Primum Non Nocere*" (first of all no damage) and "*Non Vi Sed Arte*" (not with force but with skill). The obstetric operator must never forget that undue "haste makes waste." Traumatism carries more danger to the infant than does asphyxia in slow delivery.

### *Do Forceps Have a Place?*

Forceps are employed by some men with greater frequency than by others. Some obstetricians consider them a great boon; others call them mutilators. Some writer has stated that if the fetus *in utero* had the ability to protest when a forceps was being applied to his head, he might cry out: "Don't put those mutilators on my head—I'll take my chances on a spontaneous delivery." Forceps have a very important place, however, and personally I would not want to practice obstetrics without them. When the indications are present and the conditions or prerequisites met, the use of forceps can be extremely helpful. Forceps delivery must be carried out with art and skill, not by force.

### *Indications*

There are two broad indications for the application of forceps — maternal distress and fetal distress. More specific indications are:

1. Failure of the natural expulsive forces after full dilatation and retraction of the cervix — for example, when no progress is being made with the head on the perineum or arrested in the midpelvis for one to two hours in the transverse or occiput posterior position.
2. Slight degrees of cephalo-pelvic disproportion.
3. Maternal toxemia, heart disease, tuberculosis, uterine inertia, and other diseases where it is desirable to eliminate the effort and work of the second stage of labor.
4. Maternal distress as manifested by accelerated pulse, rising temperature, marked and rising contraction ring, and tonically contracted uterus.
5. Previous cesarean section.
6. Prematurity; forceps should be used prophylactically to prevent trauma to the infant's head in the birth canal.
7. Fetal distress, as shown by:
   a. Consistent slowing of the heart rate (below 100).
   b. Consistent acceleration of the heart rate (above 200).
   c. Consistent irregularity of the heart rate.
   d. Passage of meconium. Meconium-stained amniotic fluid does not mean fetal distress.

### *Contraindications*

1. Monsters— hydrocephalus, anencephalus, and so forth.
2. Dead infant and cephalo-pelvic disproportion.
3. Marked cephalo-pelvic disproportion.
4. An environment which precludes asepsis.

### *Prerequisite conditions*

1. The head must present; the only ex-

ception is where forceps are employed to deliver the after-coming head in a breech presentation.

2. The head must be engaged—that is, its greatest diameter must have passed the superior strait. The use of forceps with an unengaged head is criminal.
3. The cervix must be completely dilated and retracted, so that no part of it can be felt when a vaginal examination is made.
4. The membranes must be ruptured.
5. There must not be too great disproportion between the infant's head and the pelvis.
6. Ideally, the bladder and rectum should be empty and the patient properly anesthetized.
7. The operator must have a thorough knowledge of the instrument.
8. A careful and thorough pelvic examination must be made before application to ascertain the position and station of the head.
9. Rigid aseptic techniques must be observed.

*General Types of Forceps Operations*

1. Outlet, low, or perineal forceps. The station of the head is 4 to 5 cm. below the ischial spines.
2. Mid-forceps. The greatest circumference of the head is in the mid-pelvis, or just below.
3. High forceps. The greatest circumference of the head is just below the superior strait, the station is 1 to 3 cm. above the ischial spines. I cannot recall that a high forceps delivery has ever been performed at Duke Hospital. We prefer internal podalic version with breech extraction.

*Technique for the Application of Forceps*

It is always a good policy to "practice in the air," so to speak. The ideal application is a cephalo-pelvic one. The forceps should be held in front of the perineum in the position you wish to have them inside the pelvis.

There are two good general rules or laws for applying forceps, which I shall designate as the "Law of the Forceps" and the "Rule of the Forceps." The Law of the Forceps states that the front of the blades must go to the point of direction. The front of the blades is the concave surface of the narrow tips of the blades. In occiput anterior and transverse presentations, the point of direction is the occiput; in posterior occiput positions, the forehead becomes the point of direction.

The Rule of the Forceps is that the left blade is first taken in the left hand and applied to the left side of the pelvis, and the right blade is then taken in the right hand and applied to the right side of the pelvis. The only time that this rule is broken is in a right occiput transverse position, where the right, or posterior, blade is applied first.

After the forceps are applied, a trial pull should be made to make certain that there is no slipping of the blades on the head. Traction should then be applied in such a way as to mimic normal labor—a gradual, sustained pull for one to two minutes, with gradual release and rest for one to two minutes to allow circulation to return to the brain of the infant. Never forget for one minute that what you have between those two steel blades is a friable brain. Pull in the direction of the birth canal, remembering the "curve of Carus." A traction bar should be used in mid-forceps deliveries. If it takes nature one or two hours to complete the second stage of labor, why should you try to deliver the head with one fell swoop?

When rotation is indicated, try manual rotation first and then apply the blades. It is amazing how easy manual rotation may be in comparison to forceps rotation. When a forceps rotation is necessary, try a "push-turn-pull" or a "push-pull-turn" maneuver; never churn the baby's head up and down. If the head does not rotate through the shortest distance anteriorly with ease, try the longer, 145-degree rotation. Don't get operative furor! Never compress the handles. Use the finger hooks for traction.

After the completion of an operative delivery (anything but the so-called prophylactic perineal or outlet forceps) palpate and inspect the entire birth canal for damage.

Finally, while managing the third and fourth stages of labor, or in the dressing room, carry out the profitable procedure of reflection. Review the case and consider the result; examine yourself to see if your judgment has been good, your technique perfect. Then decide what you would do in a similar case or if the same woman became pregnant again.

# THE RADIOLOGIC DIAGNOSIS OF PERICOLITIS AND PERICOLONIC MASSES

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*and*
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In any diagnostic problem referred to him, the radiologist should attempt to determine whether or not an abnormality or pathologic lesion exists, and, if so, where it is located and of what nature it is. In some diseases the radiologist can contribute nothing to the diagnosis; in others, the accuracy of roentgen study is quite high. Between these two extremes lie those conditions in which the radiologist can contribute evidence pointing toward the correct solution, or can exclude a tentative diagnosis by the demonstration of normal roentgen findings.

The colon, except for its extreme distal portion (rectum and rectosigmoid), is within the radiologist's realm. It is his duty to diagnose anomalies, foreign bodies, tumors, diverticular pockets, ulcerations, polyps, inflammations, and strictures resulting from previous disease. In addition to the intrinsic lesions of the colon itself, it is often possible to show disease beginning in the colon but extending beyond its confines. At other times, by using the barium-filled colon as an anatomic landmark, the radiologist may demonstrate disease adjacent to the colon, but not primarily in it.

## *Anatomy of the Colon*

The colon is largest in the cecum; it gradually diminishes in size until the rectosigmoid is reached, and then enlarges again into the rectal ampulla. The cecum lies in the right lower quadrant and is subject to pressure or involvement by any of the diseases in this location. The ascending colon continues upward from the cecum and ends at the hepatic flexure. The hepatic flexure has no firm attachment above, and its position varies. The transverse colon has a long mesentery, and traverses the abdominal cavity to end at the splenic flexure, which is suspended by the phrenico-colic ligament.

The hepatic flexure lies between the duodenum medially and the anterior margin of the liver or side wall of the abdomen laterally; above, it corresponds to the colon impression on the liver; and posteriorly, it rests on the kidney. The transverse colon normally crosses the second portion of the duodenum and the head of the pancreas. It lies behind the greater omentum. It is in relation to the liver, gallbladder, stomach, body of the pancreas, and spleen. The splenic flexure is well behind the stomach and in contact with the lower part of the spleen. The upper part of the descending colon is in contact with the lateral border of the upper pole of the left kidney.

## *Case Reports*

The following cases illustrate the roentgen diagnosis of pericolitis and pericolonic masses.

**Case 1**

A 63-year-old man was admitted with the chief complaint of pain in the left side. Palpation of the abdomen disclosed an acutely tender mass the size of a grapefruit in the left mid-abdomen. The leukocyte count was 20,000 and the patient had a septic type of fever. A barium enema (fig. 1) showed numerous diverticular pockets and irregularity in the sigmoid. The barium extended outside the lumen into sinus tracts. Operation was refused, and the patient was discharged with a diagnosis of diverticulitis and pericolitis.

At a later admission, the mass in the left side of the abdomen was found to have increased in size. Sinus and fistulous tracts had increased in both length and number. At operation the entire descending colon, the omentum, and a small portion of the small bowel were found to be involved in an inflammatory mass occupying almost the entire left side of the abdomen.

**Case 2**

A 54-year-old man was admitted with numerous fistulous tracts in the region of the right iliac crest. For several months before admission he had experienced intermittent attacks of cramp-like pains in the lower right quadrant of the abdomen, and finally noted a swelling in this area. At another hospital an abscess was drained and healed uneventfully. Shortly after this occurrence, the fistulous tracts developed. By injection of the tracts with lipiodol, connection with the bowel was demonstrated. A barium enema and small-bowel studies (fig. 2) revealed an ileitis with numerous tracts and distortion of the terminal ileum and cecum.

**Case 3**

A woman, aged 56, had, for several months before admission, complained of vague and indefinite discomfort in the left upper quadrant of the abdomen. Although the discomfort seemed to be radicular in type, neurologic and orthopedic studies failed to show a cause for the pain. Roentgen examination of the stomach demonstrated irregularity along the

Read before the First General Session, Medical Society of the State of North Carolina, Virginia Beach, Virginia, May 13, 1947.

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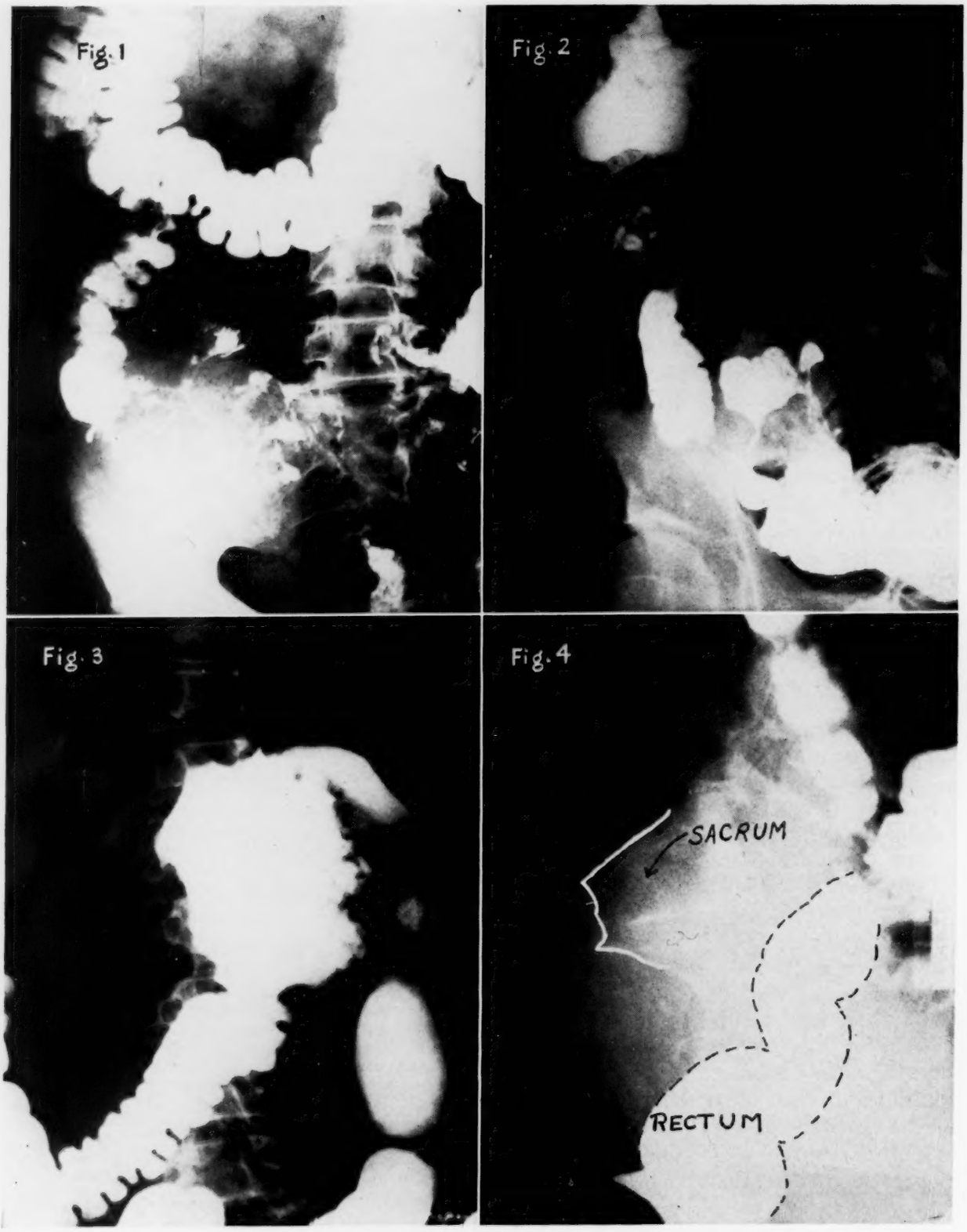


Because of an error in photographing the x-ray from which figure 1 was made, the sigmoid appears on the right side rather than the left.

greater curvature, with a pressure defect at this site. A barium enema (fig. 3) revealed a large, grapefruit-sized cavity in the distal transverse colon. The colon proper could not be followed through this mass. The radiologic impression was pericolonic abscess.

At operation a carcinoma of the splenic flexure with a large pericolonic abscess was found.

**Case 4**

A 73-year-old woman was admitted because of increasing constipation of three years' duration. X-ray views of the pelvis revealed absence of the lower half of the sacrum and the entire coccyx. There was a soft-tissue mass in this area, pushing the barium-filled rectum to the right and forward (fig. 4). The radiologic impression was chordoma or chondrosarcoma.

At operation a large chordoma was found.

**Case 5**

A man, aged 39, was admitted because of pain and a mass in the right abdomen of three weeks' duration. It was doubtful that he had had fever prior to admission, but in the hospital he did show a low-grade fever. A right retrograde pyelogram showed the upper urinary tract to be normal, with no stones. A barium enema (fig. 5) revealed a concentric filling defect in the opaque column in the upper ascending colon. At operation a large perinephritic and pericolonic abscess was found.

A subsequent barium enema revealed the colon to be normal.

**Case 6**

A 34-year-old man was first seen on April 26, 1946, because of addiction to opiates. The addiction is explained by the following story: In August, 1943, a fellow worker thrust the spout of an oil can up his rectum. Although there was no immediate pain, he soon noted slight pain in the lower rectum, together with a continuous urge to defecate. He was admitted to a local hospital because of continued and increasing pain. A barium enema was made, with equivocal findings. Sigmoidoscopic examination revealed narrowing at the apex of the rectum. At operation a mass was found at the apex of the rectum, and a diagnosis of carcinoma was made. A colostomy was performed, but no biopsy was made.

Following this operation, the patient was in and out of numerous hospitals, and was discharged each time with a diagnosis of carcinoma of the rectum. This diagnosis was evidently made on the basis of rectal examination only. During this time his consumption of opiates increased gradually.

When he was admitted to Memorial Hospital, a firm mass was palpated low in the left side of the pelvis. An x-ray of the pelvis (fig. 6) revealed barium in the rectum. This was evidently the hard mass that previous investigators had called carcinoma. It had been present since the barium enema was done in 1943—approximately two and a half years. By repeated oil and soap enemas, and with digital manipulations, this barium mass was removed. The patient's symptoms were relieved following this procedure.

A subsequent barium enema failed to reveal a lesion within the lumen of the rectum and sigmoid colon up to the distal colostomy stoma. At operation the mass in the left pelvis was found to be an encapsulated oil granuloma. A facetious pathologic diagnosis was "3-in-1 Oil granuloma."

## *Summary*

The anatomy of the colon has been discussed, and cases have been reported to illustrate (1) lesions beginning in the colon and extending beyond its confines; (2) lesions adjacent to or involving the colon, but not primarily in it; and (3) that the barium-filled colon can be used as an anatomic landmark.

# IRRADIATION FOR LYMPHOID HYPERPLASIA AND ALLERGIC BRONCHIAL ASTHMA

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*and*
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## *X-Ray Therapy for Asthma and Hay Fever*

In 1921 S. Gilbert Scott[1], a British physician, discovered that some patients with cancer of the breast who also had bronchial asthma were relieved of their asthmatic symptoms after radiation therapy. In 1926 the same author reported 21 cases of chronic asthma treated by radiation over a period of two and one half years[2]. He stated that the therapy was of definite palliative value, and believed that the poor results reported by many who had tried this method were caused by failure to use radiation over a large enough field. Since this time numerous physicians have used radiation therapy for allergic diseases, especially asthma. The results have not been consistent, and the method has never attained great popularity.

In 1925 Müller[3] reported 22 cases of bronchial asthma treated by roentgen rays. Improvement occurred in 77.4 per cent. He believed, as do other writers, that better results are obtained by using radiation not only over the lung fields, but over several different organs, widely separated. It appears, therefore, that the results are probably due to effects upon the blood, and are not dependent on a specific substance generated from any one organ after radiation.

In 1931 Schreus and Willms[4] reported good results in 75 per cent of their hay-fever patients treated with x-ray. Apparently this method of therapy acts in part as a desensitizing agent to the mucous membranes. Crain[5] stated that x-ray therapy in 44 cases of asthma and 16 of hay fever was successful in 45 per cent of the asthmatics and in 50 per cent of the hay-fever patients.

Rackemann[6], in summarizing the work of several observers, found that the percentage of good results from the use of x-ray in all forms of asthma varied from 12 to 75. He stated that he had advised x-ray therapy in only a few cases. Unger[7] found that a few patients are benefited, but that the benefit is usually temporary, lasting only a few weeks to a few months. The main contraindication to the use of x-ray therapy is pulmonary tuberculosis.

Hull, Balyeat, and Chont[8] have used radiation therapy over the chest and sinuses in asthmatic patients with evidence of sinus disease. By this means they have been able to control asthma in patients who had not responded to other means of treatment. Evidence is accumulating that x-ray therapy is of definite value in cases of asthma associated with infection of the sinuses or bronchial tree. As most chronic asthmatics have infection in one of these organs, the roentgen treatment of asthma is assuming more importance.

## *Radiation Therapy for Lymphoid Hyperplasia*

Radiation therapy, either by roentgen rays or by radium, is of definite value in treating hypertrophied lymphoid tissue in the nasopharynx, whether it is due to chronic infection or to allergic hyperplasia. Hyperplasia of lymphoid tissue is one of the chief causes of many ills of the upper respiratory passage —repeated colds, postnasal drip, sinusitis, ear infections, and deafness. Hypertrophy of this tissue in and about the eustachian tube may cause edema of the surrounding mucous membrane, impair ventilation, and damage the middle ear.

Crowe[9] is the pioneer in using radium for the treatment of hyperplastic lymphoid tissue in the nasopharynx. Fortunately this

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tissue is very sensitive to irradiation, and doses so small as not to impair in any way normal mucous membrane, gland, or cartilage will cause the lymphoid tissue to decrease or disappear. Reduction of lymphoid tissue will help in many cases to control bronchial asthma.

*Experience with Roentgen Treatment of Lymphoid Hyperplasia and Asthma at the North Carolina Baptist Hospital*

During the war years 150 patients with nasopharyngeal lymphoid hyperplasia and 20 patients with asthma were treated by x-ray at the North Carolina Baptist Hospital. Most of the former group were referred for irradiation because of some defect in hearing, chronic cough, chronic pharyngitis, or repeated respiratory infections. An effort was made to follow up the results of treatment in these 170 cases. Statements were received from 72 per cent of those treated; of this number, 34 per cent stated that they had obtained some relief, 43 per cent that they were greatly improved. Some of these said that they had been completely relieved and had had no recurrence of symptoms. Thirty-three per cent of those reporting had failed to obtain any relief.

Of the 20 asthmatic patients, 10 were private patients who had had a general allergic study. The roentgen treatment was used because they had not responded well to an allergic regimen. One 45-year-old woman obtained great relief from the x-ray treatment and left the hospital in four days after completing therapy. Her improvement lasted for about four months, and she returned in six months and asked for another roentgen treatment. This relieved her in about four days. She was a great deal better for two years, and then returned for another treatment. Since that time she has been decidedly improved. She has remained on an allergic regimen the whole time.

Another 30-year-old woman has obtained relief for a year following x-ray therapy; she too has continued her routine allergic treatment. A 60-year-old man who was seriously ill in status asthmaticus was greatly relieved in forty-eight hours; he left the hospital in one week after completing his roentgen treatment and has been able to carry on his work while continuing treatments for his allergy.

No remarkable results were obtained in any of the other patients. These cases were treated by the latest accepted method, with a large field of radiation and small dosage. There were no serious ill effects in any of the patients. X-ray therapy used for the lymphoid tissue caused a few to complain of dryness of the throat for a few days, but this soon cleared up. Most of the asthmatic patients complained of some malaise—in most cases for about twenty-four hours after each treatment; there was some loss of appetite in most of the patients, but none experienced nausea or vomiting, and most of the symptoms disappeared after the first day.

*At an orphanage*

During the same period 20 children from the Methodist Children's Home in Winston-Salem also received roentgen therapy, chiefly for lymphoid hypertrophy, middle ear infection, and deafness. Of these, 27 per cent improved greatly, 33 per cent were helped to some extent—that is, they have not been sick as often—, and 40 per cent seemed to receive no benefit. The older children in this group did not improve as much as did the children from 4 to 8 years of age. It is very likely that if the treatment had been repeated, better results would have been obtained.

*Conclusion*

Before the real value of irradiation as a therapeutic agent in allergic disorders can be determined, many more cases must be studied. It is, however, an agent well worth further investigation.

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**Army Medical Department Tests New Wonder Drug**

The U. S. Army Medical Department soon will stage the most extensive test yet made of the efficacy of chloromycetin, the only drug thus far discovered which is as effective against certain rickettsial disease-causing organisms as the sulfa drugs and peniciilin are effective against bacteria. The test will be made in an effort to stop the spread of the dreaded scrub typhus in the Far East.

Dr. J. E. Smadel, director of virus research at the Army Medical Center, and one of the discoverers of this substance, plans to fly to the Malay States early this spring with a supply of the drug for the treatment of native plantation workers among whom scrub typhus is making serious inroads.

The new drug showed considerable potency against both typhus and scrub typhus organisms in experimental infections of incubated eggs and in animals. It also proved effective against several other maladies due to rickettsia.

# LARGE CONGENITAL DEFECT OF THE ABDOMINAL WALL WITH EVENTRATION

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DURHAM

Congenital absence of the anterior abdominal wall, or failure of the wall to close, is admittedly a rarity. Rare things are usually of academic interest only. Congenital eventration, however, is important because it must be recognized by the general practitioner, obstetrician, and pediatrician, and at times by the surgeon. The life of the child, who may be healthy and otherwise normal, depends upon prompt recognition and treatment.

Johns[1] and Jarcho[2] have thoroughly reviewed the literature on this condition, which was first described by Lycosthenes[3] in 1557. To date, about 102 cases of large defects of the abdominal wall have been reported. There have been many reports of small defects, the majority of which were apparently simple umbilical hernias.

Johns[1] divides all the reported cases into three groups. Group 1 includes 68 cases, all stillborn infants, with complete exstrophy of the entire abdominal viscera, often combined with other abnormalities. Group 2 contains 19 cases of babies who were born alive but were not operated on. It is significant that all died, and equally significant that some survived as long as fourteen days after birth. Certainly it is reasonable to believe that, with such tenacity of life, some of them would have lived had repair been carried out.

Group 3 includes 15 cases in which attempts at repair were made. There were 10 recoveries and 5 deaths. The first successful operation was reported by Hogue[4] in 1882. The operation was repeated in 1892 and 1903, but not again until 1929. These 15 cases are listed in table 1. The over-all mortality was 33 1/3 per cent.

## *Incidence*

In reviewing the literature it is very difficult to determine the exact incidence of eventration. It is obvious that many reports include herniation into the cord and simple umbilical hernia. True eventration is present only when there is a defect of closure of the abdominal wall. Jarcho[2] reported 2 cases in 10,620 births at the Sydenham Hospital, New York. He cited reports in the literature giving an incidence of 2 cases in 9,500 births at Rostow Hospital and 4 in 20,735 births at the Munich Clinic. The present case being reported was the first to occur in 7,525 births. Apparently we can expect such a congenital abnormality about once in every 5,000 births.

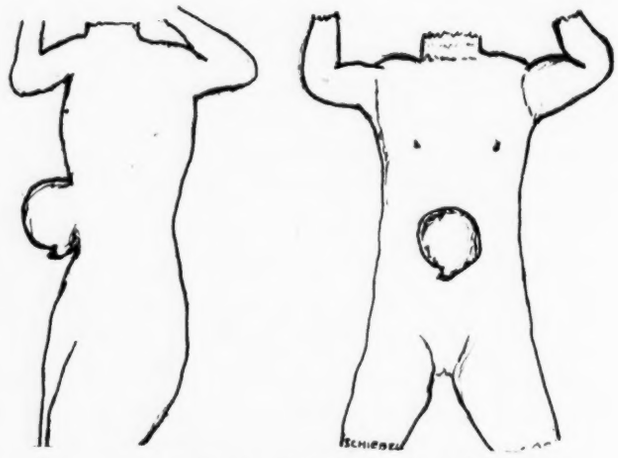

**Fig. 1. Sketch showing lateral and anterior views of the defect.**

## *Etiology*

Several theories regarding the cause of this defect have been advanced. The first was presented by Ballantyne[5], who thought that it was due to the pressure of the amnion upon the abdominal wall. The second was advanced by Jarcho[3], who felt that it was due to failure of the primitive intestinal loop to withdraw into the abdominal cavity. Recently, Politzer and Sternberg[6] have produced excellent evidence that it is most likely caused by failure of the myotome of mesoblastic origin to spread ventrally from the primitive spine at about the third week.

The covering of the protruding mass is found to consist of peritoneum, a thin layer of Wharton's jelly, and amnion. This material is translucent and moist. The cord

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2. Jarcho, J.: Congenital Umbilical Hernia, Surg., Gynec., & Obst. 65:593-600 (Nov.) 1937.
3. Lycosthenes, cited by Bernstein, P.: Gastroschisis, Rare Teratological Condition in the Newborn, Arch. Pediat. 57:505-513 (Aug.) 1940.
4. Hogue, W. P., in Tr. M. Soc. West Virginia, 1887, pp. 436-438.
5. Ballantyne, J. W.: Quinquennium of Medicine and Surgery, 1906-10, Edinburgh, W. Green & Sons, 1911, p. 38.
6. Sternberg, H. and Politzer, G.: Ueber die formale Genese der Fehbildungen des Nabelstranges und der ventralen Kœrperwand, nebst Beschreibung eines einschlægigen Falles, Beitr. z. path. Anat. u. z. allg. Path. 88:150-192 (Nov. 19) 1931.

**Table 1**

**Cases in Which Repair of the Defect Was Attempted**

| | *Reported by* | *Year* | *Color* | *Sex* | *Size of Defect* | *Time Elapsing between Birth and Operation* | *Result* | *Time of Follow-Up* |
|---|---|---|---|---|---|---|---|---|
| 1. | Hogue, W. P. Charleston, W. Va. | 1882 | N. | M. | 1″ x 1¾″ | 1½ Hours | Living and Normal | 8 Years |
| 2. | Benedict, S. C. Athens, Ga. | 1892 | W. | M. | 4″ Diam. | 53 Hours | Living and Normal | 3 Weeks |
| 3. | Sanderson, S. E. Detroit, Mich. | 1903 | Not given | | Large | 24 Hours | Died | 24 Hours |
| 4. | Caffier, P. Berlin | 1929 | W. | M. | 3″ Diam. | Brief Conservative Treatment | Living and Healed | 3 Months |
| 5. | Gamble, H. A. Greenville, Miss. | 1930 | W. | M. | 3½″ Diam. | None | Living and Normal | 16 Years |
| 6. | Williams, C. Richmond, Va. | 1930 | N. | F. | 3″ Diam. | 2 Days | Died | 12 Hours |
| 7. | Jarcho, J. New York | 1932 | W. | F. | Large | 12 Hours | Living and Well | 3½ Years |
| 8. | Dry, F. M. Illinois | 1934 | W. | F. | Large | Brief | Died | Same Day |
| 9. | Koons, F. W. Kansas | 1934 | W. | Not given | 2″ Diam. | Hours | Died | 4 Days |
| 10. | Johns, F. S. Richmond, Va. | 1942 | W. | M. | 10 x 10 Cm. | ½ Hour | Living and Normal | 3½ Years |
| 11. | Watkins Waynesboro, Va. | 1943 | W. | M. | Slit 1″ Long | ½ Hour | Living and Normal | 5 Weeks |
| 12. | Marguiles, L. | 1944 | W. | M. | 8 Cm. Diam. | 24 Hours | Died | 2½ Months |
| 13. | Schiebel, H. M. Durham, N. C. | 1944 | W. | F. | 5 Cm. Diam. | 1 Hour | Living and Normal | 30 Months |
| 14. | Marbury, W. B. Washington, D. C. | 1945 | W. | | 8 Cm. Diam. | 8 Hours | Living and Normal | 6 Months |
| 15. | McGuire, C. H. Louisville, Ky. | 1945 | | | Large | Brief | Living and Normal | 1 Year |

proper usually comes away at the inferior border of the defect.

*Case Report*

A white female weighing 7 pounds, 9 ounces, was delivered by Dr. Waldo Boone at 6:44 p.m. on December 27, 1944. The parents were normal, and the family history was negative for any congenital abnormalities. Delivery was normal, following a full-term pregnancy.

I was asked to see the baby at 7:15 p.m. Physical examination showed a newborn infant, normal except for a rounded mass protruding from the abdomen through a more or less circular opening 5 cm. in diameter. This mass increased as the child inspired or cried, and at the same time it would rise 5-7 cm. above the abdominal wall contour. It was covered by a thin, shiny, gelatinous material similar to that on the umbilical cord which came away at the inferior margin (fig. 1). A diagnosis of eventration was made. The area was covered with a sterile pad, and preparations were made for immediate operation.

The operation was carried out one hour after delivery, under ether anesthesia. The skin was cleansed with tincture of merthiolate and then alcohol. Alcohol alone was used on the gelatinous covering. A circumcision of the cord and gelatinous material was made, cutting a fresh edge of skin. The protruding mass consisted of the right lobe of the liver, the gallbladder, and a part of the duodenum. These organs were all intimately adherent to the gelatinous covering and had to be freed by sharp dissection. The fascia was then exposed in a circular fashion for about 2 cm. Two rows of no. 40 cotton sutures were placed through the fascia, thin muscle and peritoneum, and an overlapping, Mayo-type closure was made from side to side. The skin was closed with no. 60 cotton. All the sutures had to be placed and a gentle pull exerted upon them all before any could possibly be tied. The child returned to the ward in good condition.

The wound healed by first intention, and the patient was discharged on the ninth postoperative day. Sixty days later she returned with a typical intestinal obstruction of twenty-four hours' duration. Immediate operation was performed, and a single adhesive band was found attaching the ileum to a point in the region of the cecum. This was divided, and no other abnormality was found. The wound was closed with cotton sutures. Convalescence was uneventful, the patient being discharged well on the seventh postoperative day.

*Summary*

1. Congenital failure of closure of the abdominal wall is a rare abnormality.
2. The defect is reparable in at least a third of the cases.
3. The defect should be closed as quickly as possible, as the outcome is largely dependent upon the time elapsing between birth and operation.
4. A case is reported in which operation was successfully performed.

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**Psychoneurosis versus ethical defection.**— With the insight into the nature of courage that our duty overseas had given us, I and many others became convinced that we were now dealing with two large divisions of functional disability. One of these was a disease of psyche, the pathogenesis of which could be traced to evolution of the personality; the other was an ethical defection, loss of military morale. This ethical defect was often indistinguishable from its psychoneurotic counterpart. It mimicked the irresponsible disorders of the mind, resisted psychotherapy and appeared virulently contagious. This amorality of war did not appear to be limited to the psychoneurotic individual, for normal men and women, in and out of military life, appeared tainted with it. Often it appeared to spread from a civilian focus as a secondary, ethical disorder, the complications of which disabled men in a military sense. —Alexander R. MacLean: "No Disease," Canad. M. Assoc. J. 56:323 (March) 1947.

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**Ethical defects concern the whole of our society** and people should know the implications of a disorder, bred in the North American continent, which rendered many thousands of men unfit for combat. This problem did not begin with war, nor will it end now that peace is here. When we weigh the social life of the United States in the balance scales of psychiatry and ethics, we can distinguish the same difficulties that beset the psychiatrist in the armed forces. What part did our brand of civilization play in the unwillingness of men to lose their lives in its defence? How much of the abnormalities of behaviour that fill our prisons and divorce courts, and which break our homes, results from irresponsible disorders of the mind, and how much springs directly from moral defects?—Alexander R. MacLean: "No Disease," Canad. M. Assoc. J. 56:324 (March) 1947.

## Maternal Welfare Section*

The annual report of the Department of Obstetrics of the Charlotte Memorial Hospital gives a comprehensive analysis of the work performed in this department during 1946. It represents a sincere effort upon the part of the staff to learn through a review of their material the exact quality of their obstetric practice. It is a highly commendable approach to any problem which exists. A careful analysis of this type will often indicate unsuspected needs for modification of methods formerly believed to be satisfactory, and will lead to improved results.

The authors of the report hope that it will stimulate interest on the part of other North Carolina hospitals to collect their annual statistics. Many hospitals would be amazed at their high incidence of operative deliveries and cesarean sections if a complete report on their work were prepared annually.

The Maternal Welfare Committee congratulates the Charlotte Memorial Hospital upon this review of their work, made in an effort to determine whether or not it meets the high standards now expected of a maternity service.

* * *

### ANNUAL REPORT OF THE DEPARTMENT OF OBSTETRICS OF THE CHARLOTTE MEMORIAL HOSPITAL FOR 1946

SIMON V. WARD, M.D.**
*and*
O. HUNTER JONES, M.D.†
CHARLOTTE

The authors hope that this report will stimulate other North Carolina hospitals to publish their yearly reports.

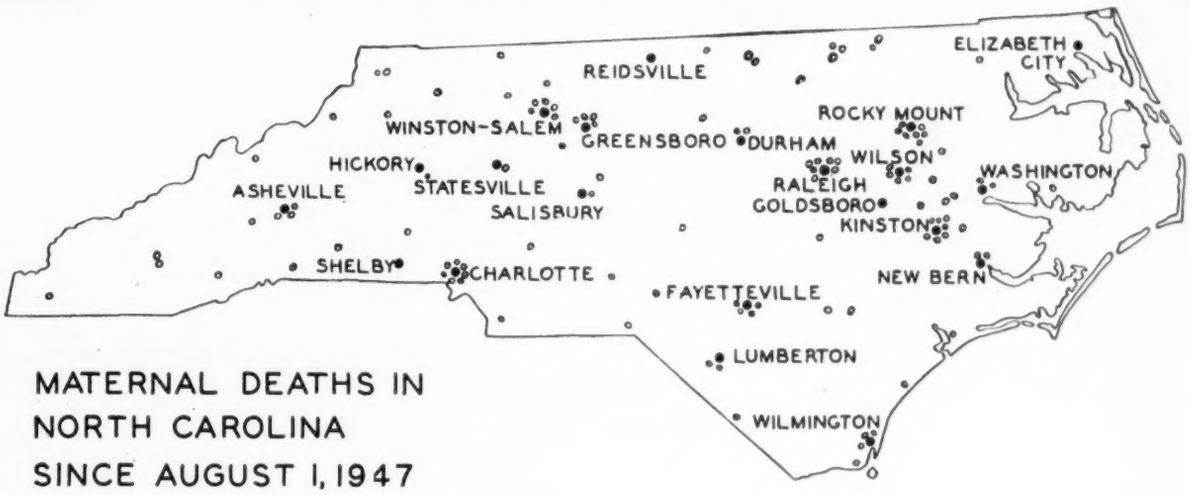
I. TOTAL NUMBER OF DELIVERIES 847

A. **Private service** .... **693** (81.8%)
Attending staff (8 diplomates of American Board of Obstetrics and Gynecology) 665

*Prepared for the Maternal Welfare Committee of the Medical Society of the State of North Carolina.

| | |
|---|---|
| Frank R. Lock, M.D., Chairman | J. S. Hunt, M.D. |
| J. Street Brewer, M.D. | T. L. Lee, M.D. |
| G. M. Cooper, M.D. | Ivan Procter, M.D. |
| E. W. Franklin, M.D. | R. A. Ross, M.D. |
| | R. A. White, M.D. |

** Resident in Obstetrics and Gynecology, 1946.
† Chief of the Obstetric and Gynecologic Service, 1946.




## MATERNAL DEATHS IN NORTH CAROLINA SINCE AUGUST 1, 1947

Courtesy staff (4 general practitioners) 28

**B. Ward service** 154 (18.2%)

### II. TYPE OF DELIVERY

Primiparas 410
Multiparas 437

**A. Pelvic deliveries** 816 (96.4%)
Episiotomies 665 (81.5%)
Episiotomy breakdown 4
Lacerations 28
First degree 14
Second degree 12
Third degree 1
Urethral 1

1. Cephalic deliveries (all vertex) 791 (96.9%)
   (a) Spontaneous 150 (19.1%)
   (b) Forceps 640 (80.9%)
   Low (including "prophylactic forceps") 581 (90.8%)
   Mid[1] 59 ( 9.2%—or 7.8% of all cephalic deliveries)
   High 0
2. Breech deliveries: 25 ( 3.1%)
   Full 2
   Frank 17
   Footling 6
   (a) Type of delivery:
   Spontaneous 5
   Assisted 5
   Extracted 15
   With Piper's aftercoming head forceps 13

**B. Cesarean section** 31 ( 3.6%)
Private service 28 ( 4%)
Ward service 3 ( 1.9%)

1. Indications
   (a) Cephalopelvic disproportion 5
   With trial of labor 3
   Without trial of labor 2
   (b) Hemorrhage 4
   Accidental 3
   Placenta praevia (central) 1
   (c) Previous operative procedures 4
   Extensive pelvic plastic 3
   Myomectomy 1
   (d) Previous sections 9
   (e) Other indications 9
2. Type of operation:
   Classical 20
   Low-flap 11
3. Anesthesia
   General (cyclopropane usually) 21
   Continuous spinal 10
4. Additional operative procedures 9
   Tubal ligation (Pomeroy technique) 8
   Excision of ovarian cyst 1
5. Morbidity (uncorrected) 9
   Extrauterine complications 6
   Corrected morbidity 3 (9.7%)

### III. POSTPARTAL STERILIZATIONS

(in addition to those done at cesarean section) 32

### IV. MATERNAL COMPLICATIONS

**A. Maternal mortality**[2] 1 (.12%, or 1.2 per 1000)

**B. Maternal morbidity (uncorrected)** 59 (7%)
Extrauterine complications 33
Corrected morbidity 26 (3.1%)
Corrected morbidity by months:

| | | |
|---|---|---|
| Jan.—4.2% | May—9.6% | Sept.—1.0% |
| Feb.—4.5% | June—2.3% | Oct.—2.2% |
| Mar.—5.0% | July—3.8% | Nov.—1.1% |
| April—0 | Aug.—3.2% | Dec.—1.1% |

**C. Toxemia of pregnancy** 24
1. Eclampsia 2
   Intrapartal 1
   Postpartal 1
2. Pre-eclampsia 22

**D. Hemorrhage** 19
1. Accidental 13
2. Placenta praevia 2
   Central 1
   Marginal 1
3. Third stage 1
4. Postpartal 3

1. Many of the mid-forceps group were low mid-forceps. Actually some were, for all practical purposes, low forceps, but to be technically correct were called low mid-forceps.

2. A history of this case is given at the end of this report.

**E. Prolapsed cord**[3] 2

**F. Retained placenta** (requiring manual removal) 14

**G. Cardiac disease** 4
- Heart block 1 (maternal death)
- Cardiovascular 2
- Paroxysmal tachycardia 1

**H. Diabetes** 3

**I. Urinary tract complications** (requiring hospitalization) 7

**J. Miscellaneous** 11

One each of the following: fibroids; cervical polyp; acute gonorrhea; latent syphilis; condylomata acuminata; pelvic thrombophlebitis; laceration of cervix requiring repair; uterus didelphys (?); chronic hypertension; hypoproteinemia; impetigo.

## V. FETAL MORTALITY

**A. Total deaths** (856 births) 33 (3.9%; corrected, 1.3%)
- Private service 27 (3.9%)
- Staff service 6 (3.9%)
- Autopsies 16
- 1. Stillbirths 17 (1.97%)
  - Non-viable 14
  - Viable 3 (corrected mortality: 0.4%)
- 2. Neonatal deaths 16
  - Non-viable 8
  - Viable 8 (corrected mortality: 1%)

**B. Stillbirths** 17
- 1. Service
  - (a) Private 13 (1.6%)
  - (b) Ward 4 (2.6%)
- 2. Cause of death
  - (a) Congenital abnormalities incompatible with life 3
  - (b) Congenitally normal 14
    - 1. Non-viable age 4
    - 2. Viable age 10
  - (c) Macerated 7
    - (1) Cause of death undetermined 5
    - (2) Nephritis, chronic 1
    - (3) Toxemia of pregnancy and erythroblastosis 1
  - (d) Not macerated 3 (0.4%)
    - (1) Death from asphyxia during a difficult mid-forceps delivery; persistent occiput posterior, with prolonged labor (53 hours) and cervical dystocia. (Autopsy) 1
    - (2) Toxemia of pregnancy 2

3. Both babies survived. In one case the resident did a vaginal examination immediately following spontaneous rupture of the membranes in a multipara with a transverse presentation. He found the cord prolapsed through a partially dilated cervix. A slowing fetal heart rate indicated that the circulation was being embarrassed. He pushed the presenting part up and held it there until the private obstetrician could do an emergency cesarean section, thereby, in all probability, saving the baby's life.

**C. Neonatal deaths** 16 (1.9%)
- 1. Service
  - (a) Private 14 (2.1%)
  - (b) Ward 2 (1.3%)
- 2. Cause of death
  - (a) Prematurity 9
    - (1) Viable 2
    - (2) Non-viable 7
  - (b) Cerebral hemorrhage (autopsies) 2
  - (c) Hemorrhagic diathesis (including adrenal hemorrhage) (autopsy) 1
  - (d) Cerebral anoxia (due to cord around neck) (autopsy) 1
  - (e) Atelectasis (cause undetermined) (autopsy) 1
  - (f) Congenital malformation of heart, incompatible with sustained life (autopsy) 1
  - (g) Infectious diarrhea 1

## VI. PREMATURE BIRTHS[4] 59 (6.9%)

(2500 Gm. (5½ pounds) or less at birth, as defined by the American Academy of Pediatrics)

**A. Service**
- 1. Private 43 (6.3%)
  - Mortality 7 (17%)
- 2. Ward 16 (10.4%)
  - Mortality 2 (12.5%)

### *Report of Maternal Death*

The patient was a 23-year-old woman from the mountains of western North Carolina. Her two previous pregnancies and deliveries — thirty-six and twenty-three months prior to her present confinement—had been uneventful, and her local doctor stated that there had been no evidence of cardiac pathology during these pregnancies. Two months before the onset of her present pregnancy, she was told by another doctor that her pulse was very slow and her blood pressure low; this is the only clue that the heart block antedated the pregnancy.

A few days before admission to Charlotte Memorial Hospital, the patient consulted her local doctor for the first time during the third pregnancy, at which time she was almost 7½ months pregnant. She complained of progressive dyspnea during the past month. The slow pulse rate was detected and an electrocardiogram was taken which revealed a heart block. The patient was then sent to an internist in Charlotte for cardiac consultation and opinion.

He first saw her on July 31, 1946, in his office, where a complete physical examination was done. This was essentially negative except for the findings pertaining to the heart. Her pulse rate was 40 per minute and regular, her blood pressure 104 systolic, 60 diastolic. The heart was slightly enlarged to the left; a loud systolic murmur was heard over the entire precordium, being loudest just to the left of the sternum at the fourth interspace; both second sounds were accentuated, the pulmonic more than the aortic. Fluoroscopic examination of the chest was not remarkable. The electrocardiogram showed a marked left axis deviation and heart block, with complete auriculo-ventricular dissociation. The ventricular rate was approximately 38.

Urinalysis was negative. The hemoglobin was 75 per cent, red cells 3,400,000, white cells 9,000 with a normal differential.

4. An analysis of this group of cases is published on the following page.

The patient was hospitalized the same day for further study and observation. A few hours after admission, labor began spontaneously, and an obstetrician was called in. The patient had an easy labor of seven hours under excellent Demerol anesthesia. Delivery was spontaneous, almost precipitate, following spontaneous rupture of the membranes. The baby was premature, weighing 4 pounds, 8 ounces, but was vigorous and did well. The patient stood labor and delivery well, with no change in the heart block and with no evidence of decompensation. After delivery her pulse rate was 48 and her blood pressure 115 systolic, 80 diastolic.

Twelve hours after delivery the internist attempted to break the heart block by giving 0.5 cc. of Adrenalin. The pulse rate went to 144 and the patient became extremely apprehensive and complained of difficulty in breathing. These symptoms subsided in a few minutes, and the pulse rate returned to 42. After this it was decided to defer all investigative procedures for several days. The patient felt well thereafter until approximately fifty-six hours after delivery, when the pulse suddenly increased to 120. The patient became faint and cyanotic, then rigid and irrational. The pulse was totally irregular for one minute, then the rate dropped to 40 and became regular. The cyanosis cleared and the patient became rational in three or four minutes. For the next several hours the patient's only complaint was moderate dyspnea.

Sixty hours after delivery the patient was given a low enema. Almost immediately afterwards she went into sudden cardiac and circulatory collapse, and died in a few minutes despite all efforts to revive her.

Since an autopsy could not be obtained, the exact cause of death could not be determined. The clinical diagnosis was rheumatic heart disease with complete heart block.

## ANALYSIS OF PREMATURE BIRTHS, CHARLOTTE MEMORIAL HOSPITAL, 1946

CHARLES H. GAY, M.D.*

CHARLOTTE

| | | |
|---|---|---|
| Total number of births | | 856 |
| Total number of premature infants | | 59 (6.9%) |
| Total number of premature deaths | | 9 |
| Non-viable (All weighed less than 1.25 Kg. [2¾ pounds], or were born before the twenty-eighth week of gestation.) | 7 | |
| Viable (One weighed 4 pounds, 5½ ounces, and the other 4 pounds, 9½ ounces) | 2 (3.8%) | |
| Deaths within forty-eight hours | | 8 (89%) |
| Deaths after forty-eight hours | | 1 (11%) |

From the Department of Pediatrics, Charlotte Memorial Hospital.

* Chief, Department of Pediatrics.

### "If Your Child Stutters"

Copies of the leaflet, "If Your Child Stutters," containing points for the parents of stuttering children, may be obtained by writing to the Speech Information Bureau of the National Hospital for Speech Disorders, 61 Irving Place, New York 3, N. Y.

# CHAPTERS IN THE HISTORY OF THORACIC SURGERY

JOSIAH C. TRENT, M.D., F.A.C.S., *Editor*

DURHAM

## II

## THE DEVELOPMENT OF ENDOTRACHEAL ANESTHESIA

There are a number of physiologic factors regarding ventilation which directly concern the conduct of anesthesia in the presence of an open thoracic cavity. Recognition of these principles, development of suitable apparatus for their application, and the introduction of a wide variety of anesthetic drugs have made possible anesthesia for intrathoracic surgery as we know it today.

Vesalius in 1542 discovered that inflation of the lungs was necessary to life when the chest was widely opened. He was able to keep animals alive under these conditions by blowing intermittently into a reed inserted into their tracheas. More than a century later (1667), Robert Hooke[1] attached bellows to the distal end of a dog's trachea, which had been bisected just below the epiglottis, and demonstrated that ventilation could be efficient with the lungs maintained in a state of continuous inflation. He concluded that satisfactory ventilation depended not on the movement of the lungs, but rather upon the delivery of a sufficient quantity of "fresh air" to them.

In or before 1858, John Snow[2], the first physician to specialize in anesthesia, administered an endotracheal chloroform anesthetic to a rabbit by performing tracheotomy and inserting into the trachea a wide-base tube, through which the animal breathed in and out of a bag filled with chloroform vapor. This was the earliest case of anesthesia through the trachea, and the inauguration of endotracheal anesthesia.

In 1871 the German surgeon, Friedrich Trendelenburg[3], used this method in man and made an advance in technique by placing around the distal end of the tube before

1. Hooke, R.: An Account of an Experiment Made by M. Hook of Preserving Animals Alive by Blowing Through Their Lungs with Bellows, Phil. Trans. Roy. Soc. 2:539-540, 1667.
2. Snow, J.: On Chloroform and Other Anaesthetics: Their Action and Administration, London, J. Churchill, 1858, p. 117.
3. Trendelenburg, F.: Beitræge zu den Operationen an den Luftwegen, Arch. f. Klin Chirurg. 12:121-133, 1871.

inserting it a cuff which could be inflated. After inserting the tube into the trachea through the tracheotomy opening, he would inflate the cuff, achieving an absolutely water-tight fit with the wall of the trachea. The tube was connected by a length of rubber tubing to a funnel covered with gauze or flannel. Anesthesia was maintained by dropping chloroform on the gauze.

The first really exhaustive study in endotracheal anesthesia was made by the German surgeon, Franz Kühn[4]. Kühn devised semi-rigid metal tubes which he passed into the trachea either through the nose or through the mouth, using a finger to guide the tube through the larynx. He was aware of the possibilities of using the endotracheal catheter as a very efficient method of controlling the inflation of the lung during open chest surgery. He described an apparatus for the administration of chloroform vapor in oxygen under a positive pressure built up by an artificial and controllable obstruction to the exit of vapor from the system. He suggested a technique of anesthesia which was not applied clinically for twenty years, but is now universally accepted: what is now known as the "carbon dioxide absorption technique." Kühn felt that a completely closed system would be the best method for maintaining intrapulmonic pressure. The machine which was constructed for him closely resembled a modern "circle filter" apparatus and contained two cannisters filled with caustic potash. The valves of the circle filter were so situated that an enormous dead space was present in which the patient's carbon dioxide could accumulate. Because he was uncertain as to the possible chemical reaction between caustic potash and chloroform, Kühn used the machine on experimental animals but never on the human subject.

Matas, in 1901[5], perfected a modification of the Fell-O'Dwyer intraglottic cannula and insufflating bellows. His modification consisted of an endotracheal tube fitted with a plug to occlude the glottic opening so that positive pressure could be exerted through it, and a side-tube to which was attached a funnel of the type used by Trendelenburg for the administration of the anesthetic. With this apparatus he was able to confirm the findings of physiologists that a positive pressure of 6-10 mm. of mercury, and usually 8 mm. of mercury, was sufficient to overcome the elastic retractility of the human lung when collapsed by the admission of air into the pleura. He also determined the extent of the traumatizing or pathologic effects on the lung when the positive pressure was carried to excess.

Sauerbruch, in 1903[6], devised a method for ventilating the lungs by a negative pressure system ("Unterdruck"). In his original experiments the open thorax of a dog was enclosed in a glass cabinet, from which the air was apparently exhausted to produce a negative pressure of 7 mm. of mercury. This simple apparatus was gradually developed through various stages until the final stage was reached with the construction of the elaborate chamber in the Münich clinic. This chamber was large enough to contain a patient and a full operating team. The anesthetist remained outside at the patient's head.

In 1909, Meltzer and Auer[7] showed that if air under some positive pressure were blown into the trachea at its bifurcation, life could be maintained in an animal whose respiratory movements had been suppressed by curare. An endotracheal catheter of narrow hose was used, and the air was allowed to escape between the tube and the trachea. The degree to which the lungs were kept distended obviously depended on the relation between the rate at which air entered through the catheter and the rate at which it could escape through the glottis alongside the catheter. This technique was applied to clinical anesthesia by Elsberg[8], and has come to be known as "insufflation endotracheal anesthesia." Prior to this time tubes had been passed into the larynx by the sense of touch. Elsberg sought an easier and more certain method of introducing the tube, and found that the use of Chevalier Jackson's laryngoscope provided this[9].

4. Kuehn, F.: (a) Die perorale Intubation. Zentralbl. f. Chirurg. 28:1281-1285 (Dec.) 1901; (b) Perorale Tubage mit und ohne Druck, Deut. Zeit. f. Chirurg. 76:148-207 (Feb.) 1905; (c) Die perorale Intubation mit und ohne Druck, Deut. Zeit. f. Chirurg. 78:467-520 (July) 1905; 81:63-70 (Jan.) 1906.
5. Matas, R.: The Value of Artificial Aids to Respiration in "Acute Operative Collapse of Lungs" (Surgical Pneumothorax) Occurring in the Course of Intrathoracic Operations, Arch. Surg. 5:110-133 (July) 1922.
6. Sauerbruch, F., and O'Shaughnessy, L.: Thoracic Surgery, Baltimore, Wood, 1937, p. 25.
7. Meltzer, S. J. and Auer, J.: Continuous Respiration without Respiratory Movements, J. Exper. Med. 11:622-625 (July) 1909.
8. Elsberg, C. A.: The Value of Continuous Intratracheal Insufflation of Air (Meltzer) in Thoracic Surgery, Med. Record 77:493-495 (March) 1910.
9. Elsberg, C. A.: Intratracheal Insufflation Anesthesia, Its Value in Thoracic and in General Surgery, New York J. Med. 12:524-528 (Sept.) 1912.

Insufflation necessitated more complicated machinery for maintenance of anesthesia than had inhalation. Moreover, between 1907 and 1918, the value of nitrous oxide in major operations, even if small quantities of ether had to be added to it, was being recognized. The ingenuity of such men as McKesson, Gwathmey, Teter, Foregger, and Connell in this country, and of Bayle, Shipway, Magill, and Rawbotham in England was displayed as they evolved apparatus for the administration of vapors and gases.

Magill and Rawbotham, as a result of their experience as anesthetists during the first World War, advocated a return to the old "inhalation" method of anesthesia. It occurred to them that anesthesia could be more physiologically, as well as more economically, maintained if a wide, bare rubber tube were inserted into the trachea and the patient were allowed to breathe through it in both directions. This arrangement more closely resembled normal respirations than the forcible insufflation of vapors, and the body heat and moisture were better conserved.

The trend from insufflation to inhalation anesthesia received fresh impetus from the introduction of the "carbon dioxide absorption" technique by Waters in 1924[10]. When the "absorption technique" is used, the flow of gases is very slow, since an excess of anesthetic vapor need not be constantly wasted merely to act as a vehicle for expired carbon dioxide. Since it virtually depends on respirations in both directions through a cannister which contains soda-lime, the absorption technique is the antithesis of insufflation.

In the last decade operations for the treatment of bronchiectasis and chronic pulmonary tuberculosis have become commonplace. The patient occasionally exhibits such a quantity of secretion in the tracheobronchial tree that death by drowning may result unless the secretion can be removed during anesthesia. To meet this difficulty various techniques of drainage by suction, either through or outside the endotracheal tube, have been devised by Magill, Hewer, and others.

A surgeon operating inside the pleural cavity may at times be materially assisted if active respiratory movement can be minimized or abolished intermittently. Such conditions can be provided by the use of the technique known as "controlled respirations," suggested and described by Guedel and Treweek in 1934[11].

During the course of operations for lobectomy, infection of the remaining lobe by secretions aspirated from the diseased lobe constitutes a serious risk. Magill and Archibald have each suggested a method of endobronchial drainage designed to minimize this risk. In 1932, Gale and Waters described a method of "endobronchial anesthesia" whereby, during pneumonectomy, anesthesia could be maintained by means of the relatively sound lung, while the lung undergoing operation remained collapsed. More recently, Moody and others have devised a double-lumen balloon-suction catheter for use in pneumonectomies and lower lobectomies.

The advances made in anesthesia for thoracic surgery during the past twenty years have been notable. That entire agreement concerning choice of anesthetic agents and techniques for management of such cases has not been reached is evidenced by the writings of Beecher, Livingstone, Wiggins and Schultz, Moyer, Nosworthy, Neff, Randolph and Kaber, Ester, Bourne, and others. The habit of keeping accurate records of clinical experiences is still too rare among anesthetists. It is to the records which will be kept in the future by the rising generation of anesthetists that we must look for evidence which will enable us to form a more balanced judment as to the optimum conduct of anesthesia for thoracic surgery.

RUTH MARTIN, M.D.
Duke Hospital,
Durham, North Carolina

10. Waters, R. M. and Schmidt, E. R.: Cyclopropane Anesthesia, J.A.M.A. 103:975-983 (Sept. 29) 1934.

11. Guedel, A. E. and Treweek, D. N.: Ether Apnoeas, Anesth. & Analg. 13:263-264 (Nov.-Dec.) 1934.

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## COURSE IN MEDICAL WRITING

Dr. Morris Fishbein, editor of the **Journal of the American Medical Association,** will give an instructional course in medical writing at the next annual meeting of the Mississippi Valley Medical Editors' Association, to be held at Springfield, Ill., next September 29 during the annual meeting (Sept. 29, 30, Oct. 1) of the Mississippi Valley Medical Society in that city. No registration fee will be charged to members of the Association.

All interested in knowing more about this nonprofit organization, or attending the meeting next September, should communicate with the secretary, Dr. Harold Swanberg, 209-224 W. C. U. Building, Quincy, Illinois.

# North Carolina Medical Journal

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FEBRUARY, 1948


## FOR AUTHORS ONLY*

This editorial is written for the exclusive benefit of those who are preparing papers for presentation at the State Society meeting in May, and those who may, at some future date, submit articles for publication in this JOURNAL.

The attention of the former group is first called to two statements in the By-Laws of the Medical Society of the State of North Carolina: (1) "All papers read before the Society shall be the property of the Society" (Chapter X, Section 4); and (2) "No paper shall be received by or read before this Society that has been presented to any other society, excepting only a component or District Society of this State; or that has been offered for publication in any journal. In the case of any paper accepted, the author is supposed to have invested with the Society all rights to its ownership" (Chapter XI, Section 4).

For the benefit of both groups, an editorial on "The Preparation of Manuscripts," which appeared in the first volume of the NORTH CAROLINA MEDICAL JOURNAL[1], has been refurbished and is reproduced below. Most of the suggestions contained in it are taken from Dr. Fishbein's book, MEDICAL WRITING[2], which is heartily recommended to anyone attempting to prepare a medical paper.

Manuscripts should be typed on standard-size typewriter paper, *double-spaced*, with liberal margins (at least one inch on each side). Single-spaced manuscripts will be returned to the author for retyping. The title of the paper, the author's name, his degrees, and his address should be given at the top of the first page. If the paper is from a medical school or hospital, the full name of the institution and the department should be given in a footnote, along with the section or society to which the paper is presented and the date of presentation.

References to books and articles, and any other footnotes should be indicated by consecutive numerals throughout the text and then typed, double-spaced, on a separate page at the end of the manuscript. References should always be given to articles from which a direct quotation is taken or which are used as authority for statement of a fact not generally known. Books and articles not referred to in the paper should not be included, unless "an exhaustive review of the literature has been made on a subject of sufficient importance to warrant such a survey."[2] Such a bibliography is seldom justified.

References will be much more valuable to the reader if they are given in the proper form and contain the full information necessary to locate them. For articles, the NORTH CAROLINA MEDICAL JOURNAL follows the form used in the *Index Medicus*, giving, in the following order, the author's surname and initials, title of the article, name of the periodical, volume, inclusive page numbers, and date of publication (including the month and, in the case of weekly magazines, date of the month). A complete reference to a book

* Reprinted, with revisions, from the North Carolina Medical Journal for March, 1944 (volume 5, page 106).

1. The Preparation of Manuscripts, Editorial, North Carolina M. J. 1:161-162 (March) 1940.
2. Fishbein, Morris: Medical Writing, Chicago, American Medical Association, 1938.

should contain the author's surname and initials, the title of the book, edition, place of publication, name of publisher, volume (if more than one have been published), and page.

*Quotations*

Although it should not be necessary to state that all direct quotations from other sources should be put in quotation marks, and that *only* direct quotations, in the exact words of the original, should have quotation marks around them, experience has taught that all too often this first rule of literary etiquette is violated. If any words in a quotation are omitted, this omission should be indicated by a series of dots; if additions are necessary, they should be put in brackets; and *no other changes* should be made within quotation marks.

*Tables and Illustrations*

Tables and legends for illustrations should be typed on separate sheets of paper. The illustrations themselves, whether mounted or unmounted, may be numbered on the back and simply inserted in the same envelope with the manuscript. Slides and x-ray films do not make satisfactory cuts; glossy prints or black-and-white line drawings clearly lettered are preferable. It is necessary to obtain permission from the author or publisher to reproduce illustrations which have been published elsewhere.

Within the past two years the editorial board of the NORTH CAROLINA MEDICAL JOURNAL has adopted the policy of paying up to $20 on the cost of cuts for any one article. This amount usually covers the expense of reproducing four to six illustrations, depending on the size and type of cut required. If the author wishes to publish additional illustrations, he may do so by paying the extra cost.

*Case Reports*

Case reports should be written with the same care that is given the rest of the article. Dr. Fishbein says: "A case report should tell its story in clear, straightforward narrative style. It should not be transcribed word for word from original records that were hastily jotted down at the time the various events occurred; the jerky, telegraphic style of the record sheet may result in actual padding." All irrelevant findings should be omitted, and the tenses should be kept consistent. Care should be taken to avoid confusion of dates and to make the sequence of events clear.

When the paper has been typed, the author should re-read it carefully, checking on spelling and grammar. Corrections (if they are not too many) may be written between the lines in ink, as legibly as possible.

By following the suggestions given above, any writer will make much easier the work of the JOURNAL'S editorial staff.

* * * *

## DR. HOLMAN TAYLOR

A familiar figure was sorely missed at the Cleveland meeting of the House of Delegates of the American Medical Association. For thirty-five years Dr. Holman Taylor, secretary of the State Medical Association of Texas and editor of the *Texas State Journal of Medicine* since 1910, had been a perennial delegate from Texas to the A.M.A. His unfailing good humor and his honesty won him the respect of all members of the House, and the friendship and affection of those who knew him well. Veteran delegates will long remember his stentorian self-introduction, "Taylor from Texas," which could be a battle cry or the prelude to a mirth-provoking story or comment.

The end came most fittingly—as the two hundred guests at a banquet given in his honor were filing out of the hotel. He had just responded to the enconiums heaped upon him by saying, "Now I know the difference between a pat on the back and a kick in the pants." He suffered a heart attack just as he was leaving the platform, and died in a few minutes.

The leading editorial in the December issue of the *Texas State Journal of Medicine* closed with the following tribute:

"It is conceded by leaders of the State Medical Association that no man living or dead has been more valuable or has contributed more to Texas medicine than Dr. Holman Taylor . . . Even those who differed with his opinions continued always to respect his honesty and good faith and to appreciate his characteristic enthusiasm, good humor, and colorful speech. Dr. Taylor the man as well as Dr. Taylor the official will be sorely missed."

"Taylor from Texas" will be missed, not only in his native state, but in the whole country. Organized medicine is the better because he lived.

## GLORY TO THE GOVERNORS

Those doctors who have kept up with the weekly news letters from Dr. George Lull, secretary of the American Medical Association, may recall that Senator Smith of New Jersey, chairman of the Subcommittee on Health from the Senate Committee on Labor and Public Welfare, sent a letter to the governors of all the states, asking for an opinion on certain points in S. 545 and S. 1320—the Taft National Health Act and the revised Wagner-Murray-Dingell bill respectively. This letter was followed up by one from the executive director of the Democratic National Committee, giving arguments in favor of the Wagner-Murray-Dingell bill and against the Taft bill.

It is cheering to note[1] that Senator Smith received only one reply — from the governor of Utah—favoring S. 1320. Twenty-five governors supported S. 545, eight had no preference, five were not in favor of either, and nine had not replied. Later a telegram from Utah's governor made it clear that there had been a misunderstanding, and that the lone vote for the Wagner-Murray-Dingell bill was withdrawn.

Glory to our governors!

1. Hearings before Senate Committee on Labor and Health, Subcommittee on Health.

* * * *

## FEES FOR INSURANCE EXAMINATIONS

It is a matter of common knowledge—and common complaint—that the cost of virtually everything has advanced tremendously within recent years. There is one exception to this rule. That is the fee paid by life insurance companies for medical examinations. This has been "frozen" at $5.00 from the time when the memory of medical men runneth not to the contrary.

When most policies written were for $1000 or $2000, the responsibility placed on the examiner was not nearly as great as it is now, when the value of the average policy is many times that figure. At least one veteran physician has recently resigned as examiner for a number of companies because he found that the time required and the responsibility involved were out of all proportion to the fee paid. Since he had established a good reputation as an examiner, the agents knew that his reports were seldom questioned. For that reason, he was asked to make the examinations for policies of $10,000 to $100,000 or more, while examinations for smaller policies were given to younger men. The same fees were paid for all examinations, although the examination of applicants for the larger policies required more time and entailed much more responsibility.

The greatly lengthened life span now prevailing should add to the already large surpluses of the old line insurance companies. Why should not part of this surplus be used to pay the medical examiner what his services are worth?

* * * *

## MULTIPLE SPECIALIZATION

A doctor who attended the Interim Session of the American Medical Association in Cleveland was idly glancing over the Classified Advertising Directory of that city, when his attention was caught by the section devoted to physicians. Following their names, office addresses, and telephone numbers, most doctors had dignified announcements, such as "General Practice," "Obstetrics and Gynecology," "Orthopedics," "Pediatrics," and so forth. Some used plainer terms, such as "Diseases of Children," "Skin Diseases," "Diseases of the Bones and Joints." One physician's announcement, however, gave birth to a new idea about specialization:

**"Skin, Blood, Allergy and Tonsil Diseases**
**"Pre-Marriage Blood Tests and Certificates"**

Evidently this man did not believe in putting all his eggs in one basket. It is hard to decide whether he is advocating a somewhat limited general practice or multiple specialization. At least he is including a wide range of interests, and need turn away few potential customers. The fields of dermatology, hematology, and allergy cover a good deal of territory. Tonsil diseases might well take in the upper respiratory infections, which are supposed to constitute more than 60 per cent of the general practitioner's work; and the door is left open for tonsillectomies also. The matrimonial market has been quite active for some time, and there is no indication of a decline. Altogether this doctor should do fairly well for himself. We wish him well in his experiment in multiple specialization.

# Clinicopathologic Conference

BOWMAN GRAY SCHOOL OF MEDICINE OF WAKE FOREST COLLEGE

A 66-year-old white engineer was seen at the Private Diagnostic Clinic of the Bowman Gray School of Medicine on January 20, 1942. His complaint at that time was weakness in the legs and back for five or six weeks. He said that he had wakened on the morning of December 8, 1941, with marked weakness of both arms and legs which gradually subsided with activity. This same series of events was repeated each day for three days, and then the patient was hospitalized for a short period. After being discharged he spent about four weeks in bed at home manifesting marked weakness of his legs, mental confusion, vomiting, and generalized weakness. He was referred to the Private Diagnostic Clinic because of persistent weakness of the left leg which was causing difficulty in walking.

The patient's father had died of carcinoma of the prostate at the age of 68 years, and one brother and one sister had angina. The patient's own past history was entirely negative for any previous serious illness. A review of systems was non-contributory.

Physical examination revealed a blood pressure of 158 systolic, 102 diastolic. The patient talked irrelevantly. Examination of the heart showed some enlargement, a blowing systolic murmur at the apex, a loud aortic second sound, and numerous extrasystoles. Neurologic examination showed motor weakness on the left side, with hyperactive tendon reflexes and a Babinski sign on that side.

The electrocardiogram showed numerous premature ventricular extrasystoles, diphasic $T_1$ and $T_4$, and left axis deviation; it was interpreted as indicative of myocardial disease. The blood Kahn was negative. The clinical impression was coronary arteriosclerosis with probably an old infarction of the myocardium and emboli to the brain from a thrombus in the left ventricle.

The patient was next seen on September 1, 1947, when he was admitted to the North Carolina Baptist Hospital. Since he was not accompanied by any member of the family and since there was no note from the local doctor, few details could be obtained concerning his course since his last visit. The history obtained on admission was that he had suddenly collapsed ten or fifteen days previously, and had been in a comatose state since that time. Later his son stated that he had had a "heart attack" on August 21, 1947, and another such episode on August 26, 1947. About a week before that time he had had two episodes of weakness similar to those described on his first visit in 1942.

On physical examination the temperature was found to be 98.6 F., pulse 40, respiration 20, blood pressure 130 systolic, 90 diastolic. The patient was comatose and dehydrated and his breath had a foul uremic odor. The eyegrounds were not visualized The heart was questionably enlarged, and there was a grade 1 systolic murmur at the apex. A third heart sound was heard at the apex which was synchronous with jugular pulsation. The rhythm was described as being abnormal and irregular, and a bigeminal pulse was also described. Moist rales were heard in both lung bases, and the liver edge was palpable two fingers' breadth below the costal margin. Neurologic examination showed ptosis of the right eyelid, with slight facial weakness on that side. The tongue was deviated to the left and the gag reflex was absent. The corneal and abdominal reflexes were absent, and there was absence of tendon jerks on the right side. They were present on the left side, however, and the Babinski sign was present bilaterally.

The hemoglobin was 14 Gm., the red cell count 5,500,000, the white cell count 6,850. The nonprotein nitrogen was 37 mg. per 100 cc. The electrocardiogram showed premature ventricular beats with bigeminal rhythm, left axis deviation, and intraventricular block. The abnormalities in the electrocardiogram were interpreted as indicating myocardial disease. A lumbar puncture done shortly after the patient's admission to the hospital revealed a clear spinal fluid under no increased pressure. The dynamics were normal and the Pandy test was negative, but there were 469 red cells per cubic millimeter. The spinal fluid protein was 40 mg. per 100 cc., and the Kahn was negative.

The patient's blood pressure varied between 103 and 160 systolic and between 70 and 90 diastolic, with marked fluctuations. During the first two days his temperature did not rise above 99, but on the third day it began to rise quite steadily. During the

last twenty-four hours it varied between 104.2 and 101.4 F. The patient's respiration was Cheyne-Stokes in character practically all the time. The patient never showed any tendency to improve, and began to bring up thick, purulent sputum. His breath had a particularly foul odor, which was easily noticeable upon entering the room. On the third hospital day an indwelling catheter was put in place, but was removed on the same day because of marked bleeding from the catheter. He was given 1,000 to 3,000 cc. of parenteral fluids daily, and was given 10 cc. of aminophylline intravenously on two occasions. The patient expired at 2:20 a.m. on September 17, 1947. The final clinical impression was cerebral vascular accident and terminal pneumonitis.

*Discussion*

DR. GEORGE T. HARRELL: In summary, this is the story of an elderly professional man who finally died in an acute exacerbation of an illness which had lasted at least five and a half years. The family history of carcinoma and angina is interesting, since these two conditions have a hereditary tendency. The patient's marital history is not described, and his past history was entirely negative.

The present illness affected the neurologic and cardiovascular systems. The respiratory symptoms were terminal. The suddenness of the onset, during sleep, in 1941, and the collapse in 1947 focus attention first on the neurologic system. Weakness was most marked in the left leg, and was accompanied by mental confusion and vomiting.

*Anatomically*, if the man were right-handed, the initial lesion affected the right frontal cortex, and since the leg was especially involved the lesion must have been high up toward the midline near the sagittal sinus. Unfortunately we have no information on the subsequent course of the patient; it would be of interest to know if the paralytic manifestations entirely disappeared, and whether or not he had any change in personality or decrease in mental capacity. In any event, with the second acute episode he again had several spells of weakness, separated by intervals of days and culminating in collapse and coma. Physical findings at this time suggested a lesion of the upper motor neurons on the left; the lesion could have been in the frontal cortex, or lower, in the region of the internal capsule.

No symptoms related to the cardiovascular system were described at the time of the first visit, and the details of the episodes of weakness on his second visit are not given. However, physical examination in 1941 showed a blood pressure of 158 systolic and 102 diastolic, enlargement of the heart, a loud aortic second sound—indicating that hypertension had been present for some time—, extrasystoles, and a blowing systolic murmur. The electrocardiographic findings favor diffuse myocardial disease rather than a localized infarction.

On the patient's second visit the blood pressure was lower, the pulse was quite slow, and an interesting physical finding was heard —a third heart sound synchronous with jugular pulsation and undoubtedly originating from auricular contraction. The rhythm was again irregular, with a bigeminal pulse. The slow rate suggests a complete heart block, but this rarely occurs with irregular rhythm and bigeminy. The rales in the chest and the palpable liver edge could be evidence of cardiac decompensation; a note as to fullness of the veins and the presence of peripheral edema would support this impression. The electrocardiogram again indicated a disturbance of rhythm, left axis deviation, and slight intraventricular block, all of which suggested diffuse myocardial disease rather than a localized infarction.

The evidence for disease of the respiratory tract is confined to the physical examination. Elderly persons who are kept in bed, especially if they have congestive failure, inevitably develop pneumonia which is usually the immediate cause of death. The fact that the temperature was normal on admission, but rose steadily, indicates that the pneumonia developed in the hospital while the patient was under observation.

*Etiologically* the primary disease process could have been a neoplasm or a vascular disturbance. Since the initial symptoms were cerebral, one would think first of a brain tumor[1]. A lesion which involved both frontal areas, starting on the right and five years later affecting the left, would suggest an anterior meningioma, or an infiltrating tumor which crossed the midline. The sudden

1. (a) Naffziger, H. C. and Boldrey, E. B.: Cancer of the Nervous System, J.A.M.A. 136:96-103 (Jan. 10) 1948.

episodes of weakness could be accounted for by hemorrhage. The tumors which frequently lead to hemorrhage are usually rapid-growing and fatal in six months or less. Meningiomas frequently are found anteriorly, arising from the connective tissue of the sagittal sinus. The age of the patient is consistent with this tumor, but meningiomas are more frequent in women than in men. Since they compress rather than infiltrate the brain tissue, meningiomas cause irritative phenomena characterized by localized epileptic (Jacksonian) attacks; none are described in this patient. Since they tend to calcify or to erode the skull, the tumors may be seen on x-ray films of the skull; none are described in this case.

What would be the most likely location of a primary tumor giving rise to a single metastasis to the brain? No history of weight loss is described which would be compatible with cancer. The most common site of cancer in men is the stomach; no gastrointestinal symptoms are described and the patient had no anemia. Tumors in the intestine usually erode the mucosa, causing the daily loss of small amounts of blood and producing anemia. Tumors of the kidney may metastasize to the brain, but they usually leave evidence in the lungs; no x-ray of the chest is described in this case. Metastatic tumors of the lung do not usually become secondarily infected to the degree suggested by the sputum and temperature in this patient. Furthermore, tumors of the kidney are characterized by bleeding and by anemia. The bleeding from the urinary tract followed the insertion of an indwelling catheter and must have been traumatic in character. Bronchogenic carcinoma may have a long course with few symptoms. Since the mucosa of the bronchus often does not ulcerate, the tumors may not bleed and the patient may go for months with no anemia. Common sites of metastasis are the brain and the adrenals; the total duration of this patient's illness would seem too long for a bronchogenic carcinoma with cerebral metastases, however. Furthermore, it is difficult to imagine either a primary or a metastatic brain tumor persisting for five years without causing headache or other symptoms and signs.

It is interesting that both tumors and infections metastasize from the lung to the brain with some frequency. Undoubtedly, some unrecognized anatomic mechanism concerned with the angle at which the carotid arteries leave the aorta is responsible. The fact that the cerebral symptoms in this patient preceded the signs of pneumonia, however, makes metastatic brain abscess unlikely.

The purulent character of the sputum and the foul odor suggest that fusospirochetes had secondarily infected the congested lungs. The foul odor appears to have been misinterpreted as due to uremia, rather than infection; a uremic odor is pungent rather than foul. When proteolytic organisms, such as fusospirochetes from the mouth, enter an obstructed area in the lungs, tissue is destroyed and a foul odor results. Carcinoma of the bronchus may create such an obstructed area by encroaching on the lumen. Other causes of foul sputum are bronchiectasis and amoebic abscess, following rupture of an amoebic liver abscess through the diaphragm; no history suggesting either of these conditions is given, however.

The weight of evidence supports a vascular origin for the patient's symptoms. Was the primary lesion in the heart? It is known that coronary thromboses lead to myocardial infarction and the formation of mural thrombi. Mural thrombi in the left ventricle may be dislodged, and, following the same route as metastasizing tumor or abscess, they go with some frequency to the brain as cerebral emboli[2]. Cerebral emboli usually follow infarction within forty days, though most commonly they occur within ten days after the acute cardiac lesion[3]. No symptoms suggesting infarction preceded the onset of the patient's neurologic symptoms in 1941. The episodes in 1947 occurred at about the proper time following his two heart attacks. It is difficult, however, to conceive that a patient who has had an infarct of sufficient severity to lead to cerebral emboli could survive five and a half years with no cardiac symptoms in the interval. Furthermore, the electrocardiographic findings were more compatible with diffuse myocardial fibrosis than with a localized lesion such as infarction.

The weight of evidence, therefore, indicates that the cerebral lesions originated in

2. Blumer, G.: The Importance of Embolism as a Complication of Cardiac Infarction, Ann. Int. Med. 11:499-504 (Sept.) 1937.
3. Nay, R. M. and Barnes, A. R.: Incidence of Embolic or Thrombotic Processes During the Immediate Convalescence from Acute Myocardial Infarction, Am. Heart J. 30:65-76 (July) 1945.

the vessels of the brain. The patient is known to have had arteriosclerosis; arteriosclerotic cerebral vessels may either plug up with a clot or blow out with a hemorrhage. The finding of clear spinal fluid with no increased pressure favors thrombosis. Multiple cerebral thrombi may occur over a period of many years. The natural history of this process is well described by Alvarez[4]. Some of the symptoms usually seen in such cases —change in personality and inability to work —are lacking in this patient. Syphilis is a frequent factor predisposing to cerebral thrombus, but the clinical picture is not that of syphilis and the blood and spinal fluid Kahn tests were negative. Miliary cerebral aneurysms can lead to multiple cerebral accidents, but aneurysms are congenital anomalies which are usually manifest in the second and third decades of life.

It would appear, therefore, that we have followed the natural history of a generalized degenerative vascular disease manifested over a period of years by cerebral and cardiac symptoms with dramatic episodes due to complicating intravascular clots.

*Dr. Harrell's Diagnoses*

1. Generalized arteriosclerosis with hypertension.
2. Coronary arteriosclerosis with myocardial fibrosis, arrhythmia, diminished cardiac reserve, and congestive failure.
3. Cerebral arteriosclerosis with multiple fresh and old cerebral thrombi in the right and left frontal cortices and probably elsewhere.
4. Hypostatic bilateral bronchial pneumonia, secondary to congestion and aspiration of mouth organisms, mixed flora, predominantly fusospirochetes.
5. Ulceration of the bladder, traumatic, from insertion of a catheter.

*Anatomic Discussion*

DR. ROBERT P. MOREHEAD: Autopsy in this case revealed severe generalized arteriosclerosis with cardiac hypertrophy and diffuse myocardial fibrosis. The coronary arteries were markedly sclerotic, and their lumina were almost completely occluded at many points. A similar picture was presented by the cerebral arteries. The kidneys were finely granular, and the microscopic changes were those typically encountered in advanced benign arteriolonephrosclerosis. Throughout the brain multiple areas of encephalomalacia with cyst formation were present, the largest being located on the medial surface of the frontal lobe superior to the corpus callosum. Beginning in the frontal pole the cyst extended posteriorly for a distance of approximately 7 cm.

The left pleural cavity contained 200 cc. of purulent exudate, and there was bronchopneumonia of the right lower and left upper and lower lobes of the lungs. In the lower lobe of the left lung multiple communicating abscesses were encountered.

*Anatomic Diagnoses*

1. *Generalized arteriosclerosis, severe.*
2. Cardiac hypertrophy.
3. *Myocardial fibrosis.*
4. *Benign arteriolonephrosclerosis.*
5. *Multiple areas of encephalomalacia with cyst formation.*
6. Bronchopneumonia of the lower lobe of the right lung and both lobes of the left lung.
7. *Multiple abscesses of the lower lobe of the left lung.*
8. Hemorrhagic cystitis.

4. Alvarez, W. C.: Cerebral Arteriosclerosis with Small, Commonly Unrecognized Apoplexies, Geriatrics 1:189-216 (May-June) 1946.

## MEDICOLEGAL ABSTRACT

J. F. OWEN, M.D., LL.B.
RALEIGH

INSANE PERSONS: *The acts of two physicians in making an affidavit that a person's mental condition was such as to warrant admission to a mental hospital did not constitute an "adjudication" or legal declaration of his insanity.*

In this case the records show that a man was committed to a mental hospital on July 12, 1938. The procedure of commitment was according to the law prescribed and was regular in every detail. On July 19, 1938, a daughter instituted proceedings to have a guardian appointed, alleging that her father's mental condition was such that he might become the victim of designing persons, and dissipate his property. His property at the time consisted of two dairy farms valued at $25,000, and cash and other assets

valued at $17,763. According to the usual procedure for the appointment of a guardian for a person confined in a mental hospital, the superintendent of the institution furnishes a certificate of need to the clerk or the probate judge. The officer having charge of such matters then has the power to appoint a guardian. In this case the respondent filed an answer denying the allegations made by his daughter and demanded a trial by jury.

At the trial in the lower court, the judge was of the opinion that the commitment of the respondent acted as a court injunction or cautionary court order which prevented the patient from signing business papers and agreements, and even rendered him incapable of testifying in his own behalf. Upon the basis of all the evidence the lower court ordered the appointment of a guardian, whereupon the patient's attorneys appealed to the Supreme Court, entering exceptions to the above opinion as well as to other alleged errors.

The Supreme Court held that the procedure of commitment did not in any way act as an adjudication or legal declaration of the respondent's insanity. The legal commitment of a patient authorizes the hospital to accept and to detain him as long as it is necessary, unless he is released otherwise according to law.

The Supreme Court specifically held that the procedure of commitment only justified the hospital in receiving the patient and adjudicated nothing as to his ability to conduct his own business affairs. As was noted above, the statutes provide a special procedure for the appointment of a guardian separate and distinct from the act of authorizing admission. The patient may elect not to contest the appointment of a guardian, but if he objects he has the right to have the issues determined by a court with or without a jury. When the question of a guardian for a person not confined to a mental institution arises, determination by a special court procedure is the only method provided.

The above decision simply means that the procedure of commitment undertakes to dispose of one problem in connection with a mentally disordered person—that of hospitalization. Despite this fact, one who seeks to transact business with a person who has suffered from a psychosis does so at his peril. Contracts and business dealings with the insane are voidable. Although the courts are interested in the condition of the person suspected of insanity at the time the business dealing was consummated, the history of a previous psychotic episode is always supportive evidence both medically and legally in case of future attacks.

North Carolina law for some reason assumes that certain rights may be jeopardized by commitment and provides for a hearing before the clerk of court to determine the sanity of a person who has been discharged from a hospital for mental disease. The knowledge that such a hearing was held would no doubt make one less hesitant about entering into a business relationship with a person previously committed and confined to an institution. Since the mental illness might recur immediately after the hearing, however, the hearing would be of little help in adjudicating the validity of a transaction made subsequently. (Supreme Court of Pennsylvania, Feb., 1940. Atlantic Reporter, second series, vol. 11, p. 677)

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# PUBLIC RELATIONS

## THE PUBLIC AND THE MEDICAL PROFESSION

With the possible exception of the Christian ministry, there is not, I think, a higher calling among men than that of the medical doctor. The clergyman is supposed to diagnose and prescribe for ailments of the soul, and the one who cannot do just that should take stock of himself. The medical doctor diagnoses and prescribes for bodily ills. Together, the minister and the doctor exercise a definite custodial care over humanity from the cradle to the grave, each helping to bring the individual into a more abundant life—here and hereafter.

No attempt will be made to become technical in this brief discussion of what should be the layman's attitude toward the doctor. Certainly there will be an absence of medical terms, for the very obvious reason that I am in no way familiar with such terms.

But *is* the medical profession *technical* in its dealings with the layman as was once the case? To all appearances, the profession is emerging from the maze of technicalities which formerly resulted in an aloofness on

the part of the uninformed layman. Time was when the doctor, having arrived at the patient's bedside by horse and buggy, would put on a grave expression as he applied the stethoscope, inserted the fever thermometer under the tongue, looked at the whites of the eyes, and felt the pulse. "Umph-humph," he would say, with a far-off look in his eyes. Then he would take pencil and pad, write a prescription in Latin, give certain directions which must be followed, and depart, to return later in the day, tomorrow, or perhaps in a few days, as the condition of the patient might require.

This gave the sick person and members of his household a sort of fear of the doctor, as if he knew more than he was willing to tell about the patient's condition, or perhaps, his nearness to death.

Time was when a doctor would no more have addressed a group of laymen, in their own language, than a preacher would have delivered a sermon at a football game. But now both the doctor and the preacher are becoming more practical.

There has been, for some years now, a growing tendency on the part of the doctor to meet the layman on terms of the latter's understanding; to throw aside secrecy and formality, and to substitute plain American talk for Latin prescriptions. That is as it should be.

In the promotion of this growing spirit of understanding between doctor and layman, public health, no doubt, has played an important role. Working with both in the field of preventive medicine, this already existing and well established governmental agency—both the State Health Department and the United States Public Health Service—may be considered a "liaison officer" between the doctor and the average citizen. The obligation resting on public health is not only to afford mass protection, but to educate the public to the importance of good medical care—through the private practitioner where the patient is able to pay, and at public expense if the patient is indigent.

Mass protection against certain communicable diseases is, of course, a benefit that is extended to all, without charge, because no population that is half sick and half well can be 100 per cent efficient. Moreover, communicable diseases can be transmitted from pauper to prince, and *vice versa*. Therefore it is the business of government, now so recognized by all, to set up and maintain conditions conducive to the good health of all—by means of immunization, sanitation, and other measures carried on at public expense. Disease knows no barriers. It does not respect territorial lines. Especially is this true in this day of rapid transportation, when the remotest parts of the earth are within a comparatively few hours' flying time from any part of the United States. Communicable diseases heretofore unknown in this country exist in these remote sections, and can be imported from them. Therefore, it is necessary that our people not only become immunized against all preventable diseases, but also remain on guard against those ailments about which, at present, we know little, but which could easily be transmitted to us from distant parts of the world.

Hence, the importance of mass protection.

Aside from those communicable diseases against which means of immunization have been discovered, however, thousands of persons die every year in North Carolina and other states as the result of the chronic or degenerative diseases of middle and late life, against which the chief protection is early diagnosis.

While it is recognized that doctors consider it unethical to advertise—certainly as individuals—it would appear to be perfectly proper for the medical profession to establish and maintain relations with the lay public, in order to let the people know just what it has to offer in the way of early diagnosis and other preventive measures.

In 1942, the House of Delegates of the American Medical Association voted its approval of the extension service of local health departments throughout the United States. In September, 1945, the official *Journal* of the Association declared editorially: "Until the most remote American family has access to accepted modern public health services, the nation's health will not be properly served. Expansion of public health activity, long advocated and pioneered by the medical profession, is a more sound and logical step toward improving the nation's health than many grandiose plans for medical care."

Public health, in its role of "liaison officer" between the laity and the medical profession, can and should serve a still larger purpose than it has ever served before. The medical

profession, on the other hand, should seek still wider contacts with the public, through public health personnel. Public health is the child of organized medicine. No North Carolina doctor who has studied the history of his profession in this state is ignorant of the vision which was caught and held, more than seventy years ago, by Dr. Thomas Fanning Wood of Wilmington. That vision was translated into legislation which created, in 1877, the State Board of Health, which for a while *was* the State Medical Society. Later, the form of organization was changed, and the duties of the Board of Health were delegated to a board composed of members of the medical and allied professions, elected by the State Medical Society and appointed by the governor.

Here are some interesting facts, from which might be gathered many suggestions as to how the public and the medical profession may work together more closely in the promotion of the general health of the people:

In 1921, the ten leading causes of death in North Carolina were, in this order: heart diseases, tuberculosis, apoplexy, nephritis, pneumonia and influenza, diarrhea and enteritis, prematurity, non-vehicular accidents, pregnancy, and senility.

In 1946, the ten leading causes of death in our state were listed in this order: diseases of the heart, apoplexy, nephritis, cancer, pneumonia and influenza, prematurity, non-vehicular accidents, tuberculosis, motor vehicle accidents, and diabetes.

Compare the two lists and note the changes. Tuberculosis, for example, dropped from second to eighth place. Cancer, not in the first list, was fourth in the second.

Why the decline in tuberculosis? Because we did something about it—and we are going to do more. Two things are important in our fight against the Great White Plague. We must separate the infectious from the non-infectious patients, and we must use every means at our command to detect cases in their early stages, in order that the disease may be arrested and cured. In the mass surveys being made under the supervision of the State Board of Health, approximately a quarter of a million chest pictures had been made through December, 1947. The number of lives that will be saved as a result, no one can say. Those patients found to be infected are referred to their family physicians.

There is a group of diseases, however, against which we have not made the progress that we have against tuberculosis. We have prolonged life by immunizing against preventable communicable diseases, many of which occur among small children. But many of the dangers that still confront our citizens of middle and late life remain to be reckoned with. We have referred to these generally; let us be more specific. Of the 15,482 deaths which occurred in North Carolina during the first half of 1947, 8,196, or *more than half*, were attributed to four causes: diseases of the heart, 3,779; intracranial vascular lesions, 1,736; nephritis, 1,390; and cancer, 1,291. Being a layman, I hesitate to make suggestions about the handling or treatment of human ailments, but there are certain observations which even a layman may make with impunity.

The above figures, it would appear to the most casual observer, emphasize the importance of periodic check-ups by a qualified medical doctor.

The matter of *education* to the importance of a *closer relationship* between the doctor and the layman has two sides. The layman should be informed as to the importance of seeking the services of the doctor; and the doctor should impart to the layman the information so necessary to his well-being.

It has been pointed out that one of the chief functions of public health is to refer those in need of treatment to the family physician. Indigent patients, of course, should be taken care of at public expense. But those able to pay should be referred to the private practitioner, because we have been wise enough, so far, to steer shy of socialized medicine, contract practice, and other radical policies which not only undermine free enterprise but encourage the appearance of political preferment on the scene. The medical profession should be kept as free from politics as the Christian ministry.

What can the doctor do to educate the people to the value of the services he can render, without advertising himself in the accepted sense of that term? That is a matter for the doctor to work out. And it *is* being worked out, by means of educational programs, conducted through publications and over the radio. It is to be hoped that these programs will be continued and broad-

ened in their scope, until every citizen of every age will know that his physical well-being lies in the hands of the qualified medical doctor. When education as to the value of medical assistance, in time to prevent as well as to cure, becomes universal, we may expect a reduction in sickness and death that will exceed our fondest expectations.

GOVERNOR R. GREGG CHERRY
Raleigh

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# TUBERCULOSIS ABSTRACTS

*A Review for Physicians*

Issued Monthly by the National Tuberculosis Association

Vol. XXI February, 1948 No. 2

CHEST X-ray surveys are now being carried on in many parts of the country or are being planned for the near future. The primary object of such surveys is to find cases of pulmonary tuberculosis while they are still in the early asymptomatic stage of the disease. However, it has been common experience everywhere that other intrathoracic lesions are discovered also by this procedure. In such cases the private physician must correlate the X-ray reports, the laboratory findings and the clinical picture in order to arrive at a diagnosis.

## THE VALUE OF CHEST X-RAY SURVEY IN THE DIAGNOSIS OF CARDIOVASCULAR DISEASE

A chest X-ray survey may be of considerable value in the discovery of heart disease in addition to abnormal pulmonary conditions. There are various cardiac lesions which may cause changes in the contour of the cardiac silhouette or in the prominence of the great vessels. It is true that individuals with a serious heart disease such as arteriosclerosis of the coronary arteries may have entirely normal cardiac shadows in the X-ray film. Certain cardiac abnormalities which are detected by other forms of radiologic examination may not be apparent on the posterior-anterior view obtained in the routine chest film. Although it must be admitted that the X-ray survey cannot be 100 per cent effective in detecting individuals with cardiovascular disease, it may be a very useful device.

Enlargement of the left ventricle may be detected by the chest X-ray and may be due to any one of the following causes: hypertensive heart disease, arteriosclerotic heart disease, chronic rheumatic valvular heart disease with aortic stenosis and/or insufficiency, luetic aortic insufficiency and other less common cardiac lesions. Localized enlargement of the lower left cardiac border may be found in aneurysm of the left ventricle following coronary thrombosis with myocardial infarction. Right ventricular enlargement may be manifested by an increase of the heart shadow to the right of the midline. Commonly, however, moderate or even marked enlargement of the right ventricle may cause an increase in the heart shadow to the left. The posterior-anterior projection does not always, therefore, in itself give adequate information as to which chamber of the heart is enlarged.

An increased prominence of the pulmonary trunk and pulmonary artery shadow on the superior portion of the left heart border may be found in mitral stenosis, interauricular septal defect, patent ductus arteriosus, pulmonary arteriosclerosis, chronic cor pulmonale and thyrotoxicosis. It may also be present when the left side of the heart has decompensated as in hypertensive heart disease.

Relatively diffuse cardiac enlargement may occur in myxedema, thiamine deficiency, anemia and myocarditis. In myxedema, the cardiac contour may be globular.

Pericardial effusion may be manifested by cardiac enlargement to both right and left with fairly convex lower heart borders. Chronic constrictive pericarditis may be suggested by deposits of calcium seen in the cardiac shadow. Distention of the vena cava may be caused by constrictive pericarditis and may be detected on the routine chest film.

Abnormalities in the thoracic aorta may be found in a survey. Arteriosclerotic or syphilitic aneurysm of the aorta may present a striking X-ray appearance. Lesser degrees of tortuosity and ectasia may commonly be seen in adults of the older age groups. Deposits of calcium may be seen in the aortic knob. Decreased prominence or absence of the aortic knob may suggest coarctation of the aorta. This is especially true if scalloping of the rib margins and left ventricular enlargement are present. Abnormalities in the origin or course of the aortic arch may also be found.

Congenital cardiac lesions may be detected also in a survey. The tetralogy of Fallot may be suggested by the combination of the peculiar boot-shaped heart plus the anemic appearing lungs. Interventricular septal defects may cause enlargement of both the left and the right ventricle. Dextrocardia will be evident by the striking X-ray appearance of the chest. Other congenital cardiac lesions have been mentioned above.

It is essential that those individuals whose routine X-ray films show cardiovascular abnormalities be referred to their physicians for further studies. Only by obtaining a careful history and physical examination and by making judicious use of the electrocardiogram, other forms of radiologic examinations, and other laboratory procedures can an exact diagnosis be arrived at and proper management instituted. It is possible that some completely curable cardiac lesions may be discovered by the survey. The health of other individuals with cardiac disease may be preserved by regulating activity to an optimum level and by applying appropriate therapeutic measures.

The value of a survey to the health of a community is impossible to estimate. It will depend in large measure on how well the physicians of the community perform the task of arriving at an exact diagnosis and advising appropriate therapy.

**The Value of Chest X-ray Survey in the Diagnosis of Cardiovascular Disease, George N. Aagaard, M.D., The Journal-Lancet, June, 1947.**

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### The Schering Award for 1948 Announced

The interesting and vitally important subject of "The Role of Hormones in the Maintenance of Pregnancy" is the basis for the Schering Award for 1948. For the three best manuscripts submitted by undergraduate students of American and Canadian medical schools on such a designated phase of endocrinology, the Schering Award annually offers cash prizes of $500, $300, and $200. The Schering Award is sponsored by the Schering Corporation of Bloomfield, New Jersey.

# BULLETIN BOARD

## MINUTES OF EXECUTIVE COMMITTEE MEETING

**December 14, 1947**

The Executive Committee of the Medical Society of the State of North Carolina met at 11 a.m. on Sunday, December 14, 1947, in the Hotel Sir Walter, Raleigh, with the following members present:

**Officers:**

Dr. J. F. Robertson, president, Wilmington
Dr. J. G. Raby, second vice president, Tarboro
Dr. Roscoe D. McMillan, secretary-treasurer, Red Springs

**Councilors:**

Dr. Zack D. Owens, First District, Elizabeth City
Dr. John C. Tayloe, Second District, Washington
Dr. Newsom P. Battle, Fourth District, Rocky Mount
Dr. M. D. Hill, Sixth District, Raleigh
Dr. James H. McNeill, Eighth District, North Wilkesboro
Dr. Irving E. Shafer, Ninth District, Salisbury

**Others present:**

Dr. T. Leslie Lee, Kinston
Dr. Verne S. Caviness, Raleigh
Dr. Frank R. Lock, Winston-Salem
Dr. Fred C. Hubbard, North Wilkesboro
Dr. George L. Carrington, Burlington
Dr. A. B. Choate, Charlotte
Dr. John R. Bender, Winston-Salem
Dr. Ivan M. Procter, Raleigh
Dr. David A. Young, Raleigh
Mr. J. T. Barnes, executive secretary, Raleigh

After the meeting was called to order by President Robertson, all present rose and stood in silence for a moment, out of respect to the late president, Dr. Sharpe. Secretary McMillan then read the tribute to Dr. Sharpe which was written by Dr. Brockton Lyon and published in the December issue of the **North Carolina Medical Journal**. The following motion was put to vote and adopted:

"RESOLVED that the Executive Committee of the Medical Society of the State of North Carolina direct its secretary to draw up suitable resolutions concerning the death of Dr. Frank A. Sharpe, the president of the Society, and that the resolution which has just been read by the secretary be adopted as the expression of the Executive Committee and spread upon the minutes thereof, that it be published in the **North Carolina Medical Journal** and that a copy be sent to the widow of Dr. Sharpe."

President Robertson suggested that the By-Laws of the Society should be changed so that the first vice president, rather than the president-elect, would succeed to the presidency in the event of the president's death. He asked the members present to consider the advisability of making such a change at the next meeting of the Society.

President Robertson then called on Dr. Frank R. Lock, chairman of the Committee on Maternal Welfare, who submitted the following report:

**Report of the Committee on Maternal Welfare**

The Maternal Welfare Committee has continued an active program to encourage better maternal care in North Carolina. The committee has had two meetings since the last report was made at the state medical convention, and a third meeting is to be held this afternoon. The committee has continued the maternal mortality survey which was begun in August, 1946. Two hundred and sixty-seven maternal deaths have been investigated. Complete information has been obtained for practically all of the cases. In each instance, the physician who attended the patient has been sent a copy of the committee's analysis of the cause of death, and, in addition, a brief discussion of the factor which was considered primarily at fault in the case of preventable deaths. A fine spirit of cooperation has been exhibited by the physicians of the state, and there are only three who have not given the committee information about the patient's last illness and medical management.

The committee has continued to prepare a section for the **North Carolina Medical Journal** each month; and in recent months, we have used brief case reports to illustrate the errors in medical management which are frequent causes of unnecessary maternal deaths. We feel that the doctors in North Carolina are more interested in maternal welfare than they were at the time our study was begun, and that by virtue of this alone the committee has been successful.

We must, in addition, reach the public and our hospitals for the program to be successful. The North Carolina Hospital Association is anxious to work with us. They are now ready to send a copy of the last article prepared by the committee to each hospital in North Carolina. This article discusses one phase of the hospital's responsibility in the care of obstetric patients. They would like for the committee to prepare other articles concerning similar problems for distribution to the hospitals within the state. Our committee would like to have the approval of the Executive Committee before we enter this program.

Forty per cent of our maternal deaths resulted directly from ignorance or neglect upon the part of the patient or her family. In these cases, the patients failed to seek medical care or to follow the advice which was given them. In the majority, the patient was either uneducated or illiterate. We feel that an educational campaign to reach them must be broadcast by the radio stations of the state. It is not likely that printed matter would reach them.

If the Executive Committee approves of a program of public education, the Maternal Welfare Committee can arrange for a series of radio programs to be broadcast from each of the stations in North Carolina. The subject of the broadcasts would be based on a specific problem which has been determined by the maternal mortality study. This program can also be arranged through the North Carolina Hospital Association, the North Carolina Hospital Saving Association and similar agencies at no cost to the State Society, except the usual expense of the Maternal Welfare Committee.

Some of the newspapers of the state have learned of the work of the Maternal Welfare Committee and are interested in publishing accurate general information as a public service. We have not given any information to them, but we feel that it would be of value to give selected material to the newspapers in order to further the program of public education. We would like the approval or disapproval of the Executive Committee on this point.

Respectfully submitted,
FRANK R. LOCK, M.D., Chairman
Committee on Maternal Welfare

. . . Dr. Lock was commended for the excellent work of his committee, and the following resolution was adopted:

"RESOLVED that the Executive Committee approve the suggestions of the Committee on Maternal Welfare for the furtherance of that committee's work by cooperating with the North Caro-

lina Hospital Association and by inaugurating a program of radio broadcasts."

A motion to increase the appropriation of Dr. Lock's committee to take care of the full cost of its budget was made by Dr. Tayloe, seconded by Dr. Shafer, and passed. Dr. Lock then asked for an expression of opinion on the matter of giving out information to the newspapers. Dr. McNeill suggested that all publicity go out through the Public Relations Committee.

President Robertson called on Dr. T. Leslie Lee, chairman of the Cancer Committee, who submitted the following report:

**Report of the Cancer Committee**

The scope of this committee includes three distinct phases:

1. The direction of cancer control for the Medical Society of the State of North Carolina in this state.
2. To act in cooperation with the State Health Department in the administration of the Cancer Act.
3. To act as the Executive Committee of the North Carolina Division of the American Cancer Society.

These three duties consume an enormous amount of time and an untold amount of correspondence. Two meetings have been held so far this year—one on September 21, the other on December 7. The first meeting was attended by more than two thirds of the committee, and the last meeting was attended by all but one member. This, your chairman thinks, is an excellent record. It tends to show the interest of the profession in that great killer, **Cancer**. Your chairman and the committee feel that North Carolina is indeed fortunate in having such close cooperation in cancer control among the State Board of Health, the Medical Society of the State of North Carolina, and the North Carolina Division of the American Cancer Society. All three organizations are cooperating to the utmost in carrying out this program.

North Carolina is most fortunate in having at the head of the North Carolina Division of the American Cancer Society such an excellent woman as Mrs. George E. Marshall of Mount Airy, State Commander. Mrs. Marshall is most cooperative and is insistent that the program in this state be run in absolute cooperation with organized medicine. I feel that a letter from this body commending her upon her work would not be amiss.

At the first meeting of the committee the following questions were discussed:

The question of the employment of a Director of Cancer Control within the State Board of Health in North Carolina. As you will no doubt remember, this was provided for in the Cancer Act passed by the Legislature. So far the combined efforts of the Cancer Committee and the State Board of Health have failed to bring forth a director. This failure is due in no small part to the inability of the State Board of Health to pay an adequate salary for a man of the caliber desired, and to the scarcity of physicians. We are still working on this matter and hope to have it solved within the not too distant future.

The question of the establisment within the State Board of Health of a Department of Cytology was also discussed. It would be the purpose of this department to make available to all physicians in North Carolina on a free basis the interpretation of the recently developed and popularized Papanicolaou smear. This matter was tabled for further consideration and for consultation with the State Board of Health.

The budget of the North Carolina Division of the American Cancer Society was read, discussed and approved. The Committee passed on the employment of a public relations firm—Mathis, Murphy, and Bondurant—to handle the public relations of the North Carolina Division of the American Cancer Society.

As the chairman was unable to attend the regional meeting of the American Cancer Society held in Miami, Florida, in November, Dr. Ivan Procter was appointed in his place. Dr. Procter attended this meeting and brought back many valuable suggestions on cancer control.

The chairman attended the annual meeting of the American Cancer Society in New York during the middle of November. I am extremely happy to report that the American Cancer Society is now organized on a firm and lasting basis. They have excellent men at the head of its various divisions. Its work is guided by a board of directors composed of the most prominent business men and physicians in the United States. Our own Dr. Wingate Johnson is a member of the National Board of Directors. Their program of education, research, and service is now going forward in a most satisfactory manner.

The following matters were discussed at the second meeting of the committee:

Dr. Carl V. Reynolds, the State Health Officer, was present, and discussed further the employment of a Director of Cancer Control in North Carolina. He stated his inability to secure such a director, but said that he had secured Dr. Ivan Procter of Raleigh, now inactive in the practice of medicine because of illness, to make a survey of the needs and methods required for cancer control within North Carolina. The purpose of this survey would be to have such information at hand when a director is employed. It was the thought that this would save an enormous amount of time. This matter was approved.

Many questions regarding the administration of the North Carolina Division of the American Cancer Society were discussed. A copy of the minutes will be forwarded to the president and secretary as soon as these are available. A new constitution and by-laws of the North Carolina Division of the American Cancer Society were adopted. In these by-laws the Cancer Committee of the Medical Society of the State of North Carolina is given responsibility for the policies, activities, finances, and other matters pertaining to the North Carolina Division of the American Cancer Society.

The committee voted to request the Executive Committee of the Medical Society of the State of North Carolina, through its secretary, to send out a form letter in the very near future and ask every county society to have at least one paper on cancer during the month of April.

It also voted to ask the approval of the Executive Committee in asking the Board of Editors of the State Medical Journal to devote the April issue of the **Journal** to cancer.

It voted to ask the president of the Medical Society of the State of North Carolina to appoint a Speakers' Bureau on cancer, which speakers would be available to any county medical society at any time.

In cooperation with the American Cancer Society it was voted to put on two refresher courses in cancer during the coming year, one of these courses probably to be held at Bowman Gray and one at Duke. Various phases of cancer would be covered by eminent physicians in this particular field. Expenses of such refresher courses would

be borne by the medical school and by the North Carolina Division of the American Cancer Society.

The committee would like specific approval of the Executive Committee of the Medical Society of the State of North Carolina on the following questions:

The request to ask each county society to devote at least one program during the month of April to cancer.

The request to the editorial board of the **North Carolina Medical Journal** that the April issue be devoted to cancer.

The appointment by the president of the Society of a speakers' bureau on cancer.

That the Society send Mrs. George E. Marshall a letter of commendation for her fine work in cancer control and for her fine cooperation with organized medicine.

That the Cancer Committee be allowed space for an exhibit at the 1948 annual meeting in Pinehurst.

Approval of the establishment of a cytology laboratory in the State Board of Health.

Respectfully submitted,
THOMAS LESLIE LEE,
Chairman

. . . Upon motion by Dr. McNeill, seconded by Dr. Hill, the recommendations of the Cancer Committee were approved. Dr. McNeill stated that the Kiwanis Club in North Wilkesboro was interested in getting a film, financed by the American Cancer Society, showing the essentials for setting up a cancer-detection center. He asked for an expression from the Executive Committee as to whether this would be considered ethical and feasible. A motion by Dr. Taylor that the project be approved was seconded and carried.

In the absence of Dr. Winkler, chairman of the Industrial Health Committee, Secretary McMillan read the following recommendations from this committee:

1. "That the North Carolina State Medical Association urge its members to report known cases of industrial diseases to the local health departments."
2. "That the North Carolina State Medical Association urge the medical schools of the state to broaden their programs for undergraduate and postgraduate teaching of industrial health."
3. "That the North Carolina State Medical Association include in its future scientific programs a symposium on industrial health or invite a nationally known speaker to present a subject of interest to the general practitioner on industrial health."
4. "That the North Carolina State Medical Association recommend to the county medical societies to appoint committees on industrial health to work with the State Committee on Industrial Health."
5. "That the North Carolina State Medical Association urge industry to require a pre-employment physical examination including an x-ray of the chest, since it is the opinion of the committee that no examination of the chest is complete without an x-ray and that periodic health examinations include an x-ray of the chest."
6. "That the North Carolina State Medical Association urge industry to make provision for employing the physically handicapped individuals, provided they are not infectious to anyone."
7. "That county medical societies appoint committees for the purpose of cooperating with the Workmen's Compensation Commission in reviewing medical testimony in cases in which questionable testimony is given."
8. "That the editor of the **Journal** of the North Carolina State Medical Association be requested to devote an issue of the **Journal** each year to industrial health."

The first, second, fourth, fifth, and sixth recommendations were approved; the third, seventh, and eighth, disapproved. It was suggested that if any section chairmen desired to present a symposium on industrial health at the State Society meeting, it would be agreeable. Dr. McNeill suggested that instead of devoting an entire issue of the **Journal** to the subject of industrial health, one or two pages in each issue be given to the subject. These suggestions met with no objection.

The report of the Insurance Committee was read by Dr. Caviness in the absence of the chairman, Dr. Papineau:

**Report of Insurance Committee**

A meeting of the Insurance Committee of the N. C. State Medical Society was held in Raleigh October 2, 1947. Every member of this committee was present except Dr. D. J. Rose of Goldsboro.

After a lengthy discussion, the committee was unanimous in its opinion that the Insurance Commissioner of this state is better qualified to pass on the qualifications of an insurance company than this committee. Accordingly it was moved that the Insurance Committee recommend to the Executive Committee of the N. C. State Medical Society that the policy of the society be made not to give endorsements to any insurance company.

It was further recommended that no endorsements should be considered to any program that is not favorable and available to all members of the N. C. State Medical Society.

The committee urges all physicians to make a careful study of all phases of any policy before accepting it.

ALBAN PAPINEAU, M.D.
Chairman, Insurance Committee

. . . A motion to adopt the report was seconded and carried.

Dr. Hubbard, chairman of the Committee on Rural Health and Medical Care, discussed the rural health education program to be conducted by the Good Health Association and the State Medical Society. The following outline of this program was filed:

**Rural Health Education Program**

**Tentative dates:** To be carried on throughout the year.

**Plan:** An intensive state-wide educational campaign designed to indoctrinate rural people with their medical care and health problems, and to enlist their active support for a comprehensive program of improvement.

**Procedure:** Program would be conducted by the Good Health Association and the State Medical Society, with the cooperation of dozens of state agencies. The Rural Health Committee of the Medical Society, of which Dr. Hubbard of North Wilkesboro is chairman, would represent the Society in its relations with the Good Health Association. **The Medical Society would sponsor the program and the Good Health Association conduct it at the Society's request.**

A Rural Health Education Committee would be formed to cooperate with the Good Health Association and the Medical Society in carrying out this education program. The membership of this committee, as suggested by the Rural Health Committee of the Medical Society and the executive director of

the Good Health Association, would be as follows:

Dr. Fred Hubbard, Medical Society; Dr. Harry L. Brockmann, North Carolina Hospital Association; Mr. Harry B. Caldwell, State Grange; Mr. R. Flake Shaw, Farm Bureau; Mr. J. G. K. McClure, Farmers Federation; Dr. Clarence Poe, **Progressive Farmer**; Miss Ethel Parker, State Board of Agriculture; Dr. Carl V. Reynolds, State Board of Health; Miss Edna Heinzerling, Nurses' Association; Thomas Pearsall, Farm Leader; Mrs. E. B. Hunter, P.T.A.; Dr. Ellen Winston, State Board of Welfare; Dr. I. G. Greer, N. C. Good Health Association, Inc.; Dr. W. M. Coppridge, Medical Care Commission; and Dr. F. D. Bluford, A & T College.

The program would open immediately with preliminary work for a two-day North Carolina Rural Health Conference, this conference to be held in January at the University in Chapel Hill. It would be co-sponsored by the Medical Society, the Good Health Association, the Agricultural Extension Service of State College, and the University School of Public Health. The reason for the conference would be to appraise rural health needs in North Carolina and to discuss ways and means to answer these needs, thereby assuring greater health opportunities to rural people. To this end the various farm organizations and other groups interested in rural North Carolina would be invited to participate in the conference and to help underwrite the expenses incident thereto.

The conference would include one or more luncheons and a dinner session, at which well known farm, medical and health authorities would speak.

The program for the two-day meet would feature discussion sessions, conferences, and addresses by experts on such subjects as Bringing and Holding Physicians in Rural Areas, Extension and Improvement of Public Health Facilities in Rural Areas, Progress of the North Carolina Good Health Program, Nursing Needs of Rural Communities, Financing Personal Health, Hospital Facilities and Community Clinics in Rural Areas, Non-Profit Hospital Insurance, Health Programs in Rural Schools, the Negro Health Problem, and others.

Following the conference, a rural health committee would be formed in each county throughout the state. Serving on these rural health committees would be the county chairmen and co-chairmen of the Good Health Association, the president (or his appointee) of the county medical society, one or more prominent farmers of the county, the county health officer, and local representatives of the farm and health agencies sponsoring the annual conference.

These local committees would be expected to conduct periodic meetings, at which the various problems of medical care and health protection in the county would be discussed and remedial action planned. These meetings would be open to rural residents from the county, and from any adjacent counties which might be concerned. Speakers for such occasions would be either local leaders with a special knowledge of the subject in question, or doctor representatives from a special Rural Health Speakers' Bureau to be organized by the State Medical Society.

The Rural Health Education Committee, in cooperation with the Good Health Association, the State Medical Society, the Agricultural Extension Service, the Rural Sociology Department at State College, the University School of Public Health, and other agencies, would prepare and issue a Speakers' Manual, which could be used as a reference guide for doctors agreeing to serve with the Speakers' Bureau. This manual would contain up-to-date data on health resources and needs in all counties of the state, plus overall facts and figures for the state as a whole and comparisons with other states.

In addition to arranging the periodic discussion meetings, the county councils would be expected to give local assistance to the Good Health Association and the Medical Society from time to time on such special promotions as Good Health Week, Hospital Insurance Week, Nurse Recruitment, public opinion polls, and the distribution of health literature.

**Purpose:** (1) To raise the standards of medical care and health protection in rural areas by acquainting rural people with their needs and helping them to bring about improvements.

(2) To try to get the people to avail themselves more fully of existing health services and facilities.

**Cooperating Agencies:** State Medical Society, State College, North Carolina Medical Care Commission, State Department of Public Instruction, State Board of Health, State Nurses' Association, North Carolina League of Nursing Education, State Grange, Farm Bureau, Farmers Cooperative Exchange, Cotton Cooperative, State Board of Agriculture, North Carolina Social Hygiene Society, North Carolina Federation of Home Demonstration Clubs, State Board of Welfare, State Hospital Association, Duke University School of Medicine, University of North Carolina School of Medicine, Bowman Gray School of Medicine, North Carolina Tuberculosis Association, North Carolina League for Crippled Children, State Cancer Society, Duke Endowment, State Board of Medical Examiners, North Carolina Pharmaceutical Association, 4-H Clubs, North Carolina Congress of Parents and Teachers, Hospital Saving Association, Hospital Care Association, American Legion, American Legion Auxiliary, AMVETS, VFW, and other veterans' organizations. **Progressive Farmer** magazine, C.I.O., A.F. of L., North Carolina Council of Churches, State Dental Association, North Carolina Nutrition Association, North Carolina Federation of Women's Clubs, Rotary, Kiwanis, Jaycees and other civic groups, North Carolina Association of Public Welfare Superintendents, Farmers Federation, State Education Association, North Carolina Farm and Farm Women's Convention, State Dairy Products Association, and others.

**Remarks:** The Medical Society is deeply interested in this project. It is felt that this plan presents the Good Health Association with an opportunity to render a great service to rural North Carolina.

. . . After some discussion, Dr. Hill moved that the Society appropriate between $300 and $500 toward the rural health program for a one-year trial period. The motion was seconded by Dr. Shafer and carried.

Dr. John R. Bender, secretary of the Forsyth County Medical Society, who had been delegated to establish a state chapter of the American Academy of General Practice in North Carolina, gave a statement concerning the organization and purposes of the Academy[1], and requested the Executive Committee's approval of a state chapter. This approval was granted.

Dr. George Carrington then told of the progress being made toward a merger of the Hospital Saving Association and the Hospital Care Association. No action was taken on this matter.

The report of the committee to work in conjunction with the Hospital Saving Association to familiarize the doctors of the state with the requirements of the Veterans Administration was read by Dr. J. H. McNeill:

1. These are to be found in the editorial, "The General Practitioner Has His Innings," North Carolina M. J. 8: 420 (July) 1947.

**Interval Report of the Committee to Collaborate with the Hospital Saving Association on the Home Care for Veterans**

There were meetings in Washington, D. C., on September 14 and in Chicago on November 6, in which most of the thirty-eight states who have home-care programs for veterans were represented. Your chairman was present at the meeting in Washington, and Mr. E. B. Crawford of the Hospital Saving Association was at the meeting in Chicago, and I believe also that our new executive secretary was present at the meeting in Chicago. One very significant thing was noted by the people who attended these meetings—namely, that it was clearly shown in the discussion that all the thirty-eight states who are working on this program are experiencing the same difficulties and have the same viewpoint as does your committee. This within itself was some comfort to us and enabled us better to appreciate the overall picture and pointed very definitely to the fact that if anything is ever to be accomplished with the Veterans Administration all of these thirty-eight states will have to act largely as a unit in exerting their influence.

In addition to these meetings referred to above, private conferences have been held with Dr. J. C. Harding in General Hawley's office in Washington and with Dr. Erp from the Richmond office and Dr. Weirick from Winston-Salem. Very frank discussions ensued. One of the primary purposes of these conferences was to cut the red tape to a minimum. Some progress has been made along these lines; for example, in Michigan and Massachusetts, very much more simplified forms for requisitions and reports have been worked out and are now in process of trial in both of these states. The Veterans Administration has assured us that if these forms are practicable they will be finally approved within the next month or two and North Carolina will be allowed to use them as well. This will certainly represent one definite step toward uniformity and should help to simplify the paper work and speed up the process of authorization.

Your committee definitely approves of the home-care program for service-connected disabilities, but opposes very vigorously the building of large veterans hospitals and clinics throughout the country, which will unquestionably be used ultimately for the care of non-service-connected disabilities. We also feel that the various veterans' organizations should be made aware of what the home-care program means, and also what it would mean to have the large veterans hospitals for a regimented program of medical care for the veteran. We feel that the same amount of money that it would take to build these large hospitals could be expended much more profitably to the veteran by enlarging and improving existing medical and hospital facilities in the veteran's own community.

As was pointed out in the report to the House of Delegates in May of this year, we felt that many of the obstacles encountered in attempting to work this program were due to the old-time veteran administrator who probably deep down in his own heart wished to see this program fail. We have recently been informed that the regional medical officer of North Carolina has resigned as of January 1, 1948. We have talked with Dr. Harding in Washington by telephone, and he has assured us that either he personally or Dr. Erp from the district office in Richmond will come to North Carolina and discuss with the committee the type of man who is to be the new chief medical officer for this district. We are very anxious that the Veterans Administration appoint a man who would have a broader understanding and sympathy with the principles of the home-care program and with whom we might expect a more cooperative relationship. We will exert our best efforts to see that this is accomplished.

Finally, as soon as the time is appropriate in the light of things which are now unsettled—for example, the appointment of this new medical officer, our conference with Dr. Harding concerning this, and the adoption of the shortened forms by the Veterans Administration—we will attempt to make a rather detailed statement for the **Journal.** In this statement we will try to explain who is eligible for this type of care, under what circumstances he is eligible, and many other details which we all need to know to perfect its function.

Respectfully submitted,
E. I. BUGG, M.D.
ALEXANDER WEBB, Jr., M.D.
J. H. McNEILL, M.D.
J. B. STEVENS, M.D.
E. McG. HEDGPETH, M.D.,
Chairman

. . . Upon motion, duly seconded and carried, the report was accepted.

Secretary McMillan gave the report of Dr. V. K. Hart's committee to review the matter of hospital and medical-service insurance:

**Report of Dr. Hart's Committee**

We first tried to select a representative committee, not only of the various specialties but of the various sections of the state. This committee was finally selected as follows: neurosurgery, Dr. Barnes Woodhall; urology, Dr. John S. Rhodes; obstetrics and gynecology, Dr. R. A. White; orthopedics, Dr. J. E. Jacobs; ophthalmology, Dr. Horace G. Strickland; internal medicine, Dr. Paul Whitaker; pediatrics, Dr. J. Buren Sidbury; radiology, Dr. Corbett E. Howard; dermatology, Dr. David Welton; general practice, Dr. J. Street Brewer; plastic surgery, Dr. Kenneth L. Pickrell; surgery, Dr. H. H. Bradshaw.

These men were asked then to make up tentative fee schedules with the idea of a top family income of $3,000.00. Then, on November 1 and 2, we had our first general committee meeting at Sedgefield Inn. I am glad to state that there was a 100 per cent attendance. Furthermore, we had both Mr. Herndon and Mr. Crawford, from the Hospital Care and Hospital Saving Associations to consult with us.

I don't believe I ever worked with a group of men who came better prepared for the meeting or who were more sincere and earnest to serve not only their colleagues but the low-income group. A complete record of the meeting was made and the complete minutes will be sent to you under separate cover at a later date.

General rules of procedure were adopted. A top surgical fee was set; likewise a top medical fee. Then, each fee schedule was considered separately and thrown open for general discussion. Modifications were made as the committee deemed them necessary.

Finally, these recommendations were turned over to Mr. Crawford and Mr. Herndon for further study and analysis.

At a later date, I hope to reassemble this committee with representatives of the Blue Cross, who can then tell us two things: first, what it would cost to set up the proposed program; second, whether the proposed fees mean too high an insurance premium. If so, we may have to make further changes.

V. K. HART, M.D.

. . . This report was accepted.

Secretary McMillan then read the following letter from Dr. Donald Koonce, chairman of the Committee on Public Relations.

December 9, 1947

Dr. James F. Robertson, President
The Medical Society of the State of North Carolina
Wilmington, North Carolina

Dear Mr. President:

I very much regret that I will be unable to attend the meeting of the Executive Committee of the North Carolina Medical Society in Raleigh on Sunday, December 14. However, I would like to take this means to make a request for the Public Relations Committee, of which I am chairman.

Since the meeting seems to have a very full agenda, I will make no effort to make a report on this committee's function to date, but we stand ready to make a report at any time you so desire. The matter I would like to bring to the attention of the Executive Committee at the present time is the question of funds for carrying on our high school contest. At the present time, our committee only has the following authorization: To spend up to $600.00 for a scholarship to be awarded as a prize for the best essay or declamation by a high school student on a subject selected by the committee pertaining to public relations.

This authorization does not take care of any expenses of this contest. The Committee requested no such authorization at our last meeting because we frankly did not realize what this undertaking meant. Dr. Stuart Gaul of Charlotte has very kindly agreed to take charge of the project and has already made considerable progress. It has been decided that an essay contest would be more practical than a declamation contest—first, because more would participate; second, because it would be more expensive and considerably more difficult to arrange for a local declamation contest followed by sectional ones, and finally by a state contest for sectional winners. There are 2000 schools to whom notices and instructions must be sent and 117 county superintendents. There must be pamphlets of information prepared by the State Educational Bureau but at our expense. Dr. Gaul estimates that the mailing and the mimeographing of our first notices and instructions would amount to around $105.00. There will, of course, be other expenses of a similar nature.

I would like for the Executive Committee to authorize my committee to expend the necessary sums for mailing and advertising in this high school contest, the individual expenditures being subject to the approval of the president and the secretary-treasurer.

I realize that the Society is being called on for considerable financial expenditures, but without this additional expenditure we cannot hold our planned contest. In view of what I have been able to read, if the Public Relations Committee of the North Carolina Medical Society only spends between $800.00 and $1000.00 this year for its entire program it will undoubtedly be the lowest expenditure of any State Medical Society in the country. It is just a question of time before our Society will have to act similarly to a great many of the other societies and set aside a definite and considerable sum annually for the function of a Public Relations Department. How this can be done on the present income of the Society in addition to the many present expenditures by the treasury I frankly do not know. I, personally, do not believe that this Society can continue to function in its past efficient manner on the present income. Our Society has become "big business," and to manage "big business" it takes money. The only way of increasing our income is to increase the annual dues.

Sincerely yours,
DONALD B. KOONCE, Chairman
Public Relations Committee

. . . A motion by Dr. Shafer to apropriate the necessary additional funds for the Public Relations Committee's essay contest was seconded and carried.

At the suggestion of Secretary McMillan, the Executive Committee voted to allocate money to President Robertson for his expenses during the remainder of President Sharpe's unexpired term, and to take funds out of the general treasury to make up any deficit incurred at the Pinehurst meeting. Dr. Raby moved that the secretary send to each county society president or secretary a statement of the income of the Society and of the expected expenditures of the Society for another year. This motion was passed, and the meeting adjourned at 3:15 p.m.

## Postgraduate Course in Thoracic Diseases

The American Trudeau Society, in cooperation with the Duke University School of Medicine and the University of North Carolina School of Medicine, is sponsoring a postgraduate course in thoracic diseases at Durham and Chapel Hill, March 22-27. North Carolina physicians who are participating in the course include Drs. B. Black-Schaffer, Wiley D. Forbus, Oscar C. Hansen-Pruss, Deryl Hart, J. E. Markee, E. E. Menefee, Jr., Elbert L. Persons, David T. Smith, Eugene A. Stead, and J. C. Trent of the Duke University School of Medicine; Drs. Howard H. Bradshaw, C. C. Carpenter, George T. Harrell, and Wingate M. Johnson of the Bowman Gray School of Medicine; Drs. J. H. Ferguson, William deB. MacNider, and A. T. Miller of the University of North Carolina School of Medicine; Dr. Luther Kelly of Charlotte; Dr. J. D. Murphy of Oteen; Drs. William M. Peck and Henry Stuart Willis of the North Carolina Sanatorium; Dr. Paul Ringer of Asheville; and Dr. Claiborne T. Smith of Rocky Mount.

## News Notes from the North Carolina Tuberculosis Association

Four Negro schools of North Carolina have won honors in the 1947 Negro Essay Contest, conducted throughout the United States by the National Tuberculosis Association. The tenth grade of Carver High School, Kannapolis, won first prize for a paper on a tuberculosis survey. The Chemistry Club of Washington High School, Raleigh, was awarded second prize in the class project. Honorable mentions in the high school and college groups respectively were awarded to Marjorie M. Barnes, Allen High School, Asheville, and Loreno Yolande Mebane, Agricultural and Technical College, Greensboro.

* * * *

Dr. Charles E. Light, director of health education of the National Tuberculosis Association for the past five years, has resigned that position to join the medical division of Merck and Co., Inc. Miss Vivian V. Drenckhahn has been appointed acting director.

## Tri-State Medical Association

The forty-ninth annual meeting of the Tri-State Medical Association of the Carolinas and Virginia was held in Charleston, February 9 and 10. Among those participating in the program were Drs. Edward R. Hipp, John A. Brabson, Raymond Thompson, Oren Moore, and R. Douglas Neal of Charlotte; Dr. R. B. Davis of Greensboro; Dr. Fred R. Klenner of Reidsville; Dr. Karl Schaffle of Asheville; and Dr. J. Lamar Callaway of Durham.

## State Board of Medical Examiners

The State Board of Medical Examiners will hold its next meeting for the purpose of interviewing applicants for licensure by endorsement in Pinehurst on May 4.

## North Carolina Social Hygiene Day

North Carolina Social Hygiene Day, sponsored by the health divisions of the Charlotte Community Council and the North Carolina Social Hygiene Society, was observed in Charlotte on February 10. Dr. M. B. Bethel of Charlotte presided over the afternoon session, which included discussions by Drs. Carl V. Reynolds, R. E. Fox, Fred G. Pegg, Ralph B. Hogan, John J. Wright, W. P. Richardson, and W. F. Snow, board chairman of the American Social Hygiene Association. Dr. J. R. Heller, Jr., chief of the venereal disease control unit of the United States Public Health Service, was the principal speaker at the dinner session. Following Dr. Heller's speech, Dr. Snow awarded Dr. Reynolds an honorary life membership in the American Social Hygiene Association.

## Third District Medical Society

The Third District Medical Society met in Garland on February 6, with approximately sixty-five in attendance. Papers were presented by Drs. William M. Nicholson, Eugene A. Stead, Jr., C. C. Erickson, and W. C. Sealey, all of the Duke University School of Medicine. Dr. Amos N. Johnson of Garland is president of the society.

## Catawba Valley Medical Society

The Catawba Valley Medical Society met at the State Hospital in Morganton on February 17. Dr. Lloyd J. Thompson of Winston-Salem spoke on "Modern Treatment in Psychiatry," and remarks were made by Dr. David A. Young of Raleigh.

## Edgecombe-Nash Counties Medical Society

Hypertrophic pyloric stenosis was discussed by Dr. J. G. Raby and Dr. E. L. Roberson at the January meeting of the Edgecombe-Nash Counties Medical Society, held in Rocky Mount on January 14. A public relations committee was appointed to fight socialized medicine. Members of the committee are Drs. C. T. Smith, J. G. Raby, Kenneth Wright, and C. W. Bailey. A cancer detection committee, consisting of Drs. William Smithie, E. S. Boice, and A. L. Daughtridge, was also appointed.

## Guilford County Medical Society

Dr. Westbrook Murphy of Asheville was guest speaker at the February meeting of the Guilford County Medical Society. His subject was "Recent Work of the National Physicians Committee."

The society is sponsoring a postgraduate course in medicine, consisting of a series of seven programs, to be held at weekly intervals in Greensboro and High Point. The first program will be on March 3, the last on April 18.

Physicians who have recently moved to Greensboro include Drs. Julius Theodore Davis, Ralph Callahan Lake, Eulis Robert Troxler, and Donald Conrad Schweizer. Dr. Joseph Lindsay Cook, a former member of the society who had been out of the county for the past few years, was reinstated as a member.

## Halifax County Medical Society

The Halifax County Medical Society held its regular monthly meeting in Roanoke Rapids on January 16. The scientific program was conducted by the staff of the Roanoke Rapids Hospital.

## Warren County Medical Society

At the January meeting of the Warren County Medical Society, held in Warrenton on January 15, the following officers were elected for 1948: President, Dr. C. H. Peete, succeeding Dr. G. H. Macon; vice president, Dr. Frank P. Hunter; second vice president, Dr. William D. Rodgers; secretary and treasurer, Dr. H. H. Foster. Drs. H. H. Foster and G. H. Macon were named delegates to the State Medical Society, with Drs. William D. Rodgers and C. H. Peete as alternates.

At a previous meeting the society unanimously endorsed the proposed hospital for Warren County.

## Greensboro Academy of Medicine

The Greensboro Academy of Medicine is planning a symposium on the afternoon and evening of March 18.

## Institute for Hospital Administrators

The second Southern Institute for Hospital Administrators will be held March 22-27 on the campus of Duke University. Registration is open to administrators and assistant administrators of approved hospitals. Harold C. Mickey, superintendent of Duke University Hospital, is director of the institute.

## Roanoke-Chowan Hospital

The Roanoke-Chowan Hospital in Ahoskie, the first hospital in the state to receive grants of federal and state aid, was completed this month. Dr. George Wadsworth will be chief surgeon for the hospital.

## Charlotte Mental Hygiene Clinic

Dr. William Magruder of Starkville, Mississippi, who was formerly on the house staff of Duke Hospital, has accepted an interim appointment as attending psychiatrist of the Charlotte Mental Hygiene Clinic until July 1. Dr. R. Burke Suitt is director of the clinic, and Dr. Charles H. Gay is president of the board of trustees of the Mental Hygiene Society, which operates the clinic.

## American Physical Therapy Association Carolina Chapter

The Carolina Chapter of the American Physical Therapy Association offers advisory service for the placement of physical therapists in North and South Carolina.

Frequently qualified physical therapists request information on physical therapy vacancies in this area. If any organization, hospital, or physician wishes assistance in securing this personnel, please write Mary C. Singleton, Relations Chairman, Carolina Chapter, Duke Hospital, Durham North Carolina. Kindly describe the position and state the necessary qualifications.

## News Notes

Dr. Anna M. Gove of Greensboro died of a cerebral hemorrhage on January 28.

## National Tuberculosis Association Fellowships

Establishment of a number of teaching and research fellowships in the field of tuberculosis by the National Tuberculosis Association has been announced by Dr. Esmond R. Long, director of the NTA's Division of Research.

Annual stipends for the fellowships will range from $2,400 to $3,200. Provision will also be made for laboratory fees and incidental expenses of like character. The fellowships will be limited to graduates of American schools for teaching and investigation in the United States. While preference will be given to applicants with a Doctor of Philosophy or Doctor of Medicine degree, fellowships will not be restricted to the holders of these degrees. Applications will be considered in the fields of pathology and bacteriology, clinical medicine, epidemiology and social and statistical research. Applicants may elect the institutions in which they wish to study.

Persons interested in obtaining a fellowship should write to Dr. James E. Perkins, managing director, National Tuberculosis Association, 1790 Broadway, New York 19, N. Y., for further information.

## American Board of Ophthalmology

**Practical Examinations—1948**

Baltimore, May 20-25

Chicago, October 6-9

Written qualifying tests will be held annually, probably in January of each year. Applicants for the January, 1949, written qualifying test must be filed with the secretary before July 1, 1948.

Executive office: Cape Cottage, Maine.

## Postgraduate Course in Electrocardiography

**May 17 to 21, 1948**

Emory University School of Medicine announces a five-day intensive course presenting a comprehensive survey of electrocardiography. Emphasis will be placed on the clinical interpretation of the electrocardiogram in the light of modern excitation theories and the newer techniques in electrocardiography. The uses and interpretation of multiple chest leads, unipolar leads, the ventricular gradient and variation in normal patterns will be stressed.

In addition to the Emory University Faculty, guest speakers who will participate in the program are:

Dr. George Burch, Tulane University

Captain Ashton N. Graybiel, Medical Corps, U.S.N.

Registration Fee—$40.00

Make application to:

Director, Postgraduate Education, Emory University School of Medicine, 36 Butler St., S.E., Atlanta 3, Ga.

## American Hospital Association

The two institutes on hospital dietary departments scheduled for April by the American Hospital Association will be held in Buck Hill Falls, Pa., April 19-23, and in Kansas City, Mo., April 12-13. Emphasizing the place of the dietary department in the total hospital service offered to the community, both institutes are designed to help administrators work closely with their dietitians in establishing sound and efficient departmental organization with resultant attractive, well-planned patient meals.

## News Notes from the Office of the Surgeon General

**Positions Available in Army Hospitals Overseas**

The U. S. Army Medical Department announces the availability of opportunities for advanced training and experience in the various special fields of medicine and surgery in overseas Army hospitals. These hospitals are registered with the American Medical Association, and this training may be acceptable by the specialty board as part of the period usually required to be spent in limited practice and experience prior to admission for examination. Interested members of the medical profession who have completed the formal training requirements for certification in one of the special fields are eligible to apply for these positions.

Eligible physicians are invited to communicate with The Surgeon General, U. S. Army, Washington 25, D. C., for further information.

## Veterans Administration

Dr. Paul B. Magnuson, nationally-known orthopedic surgeon and closely identified with the reorganization of medical care in Veterans Administration hospitals, has been named chief medical director for VA by Carl R. Gray, Jr., administrator.

Dr. Magnuson, former professor of surgery and chairman of the Department of Bone and Joint Surgery at Northwestern University Medical School, Chicago, succeeds Dr. Paul R. Hawley, who resigned January 1 as medical chief and who now is serving Mr. Gray as special assistant and advisor on medical problems.

**DOCTOR WANTED**

**In the town of Pinetops, population 1,200, Edgecombe County, located in a prosperous, tobacco-farming section serving a community of 5,000 to 6,000. Has been served by two physicians during last twenty years. Both now totally disabled. Hospital facilities within a distance of twelve miles. Town has prescription druggist. A very good location for one doing general practice. Anyone interested should write Mr. S. B. Kittrell, Bank of Pinetops, Pinetops, North Carolina.**

**LOCATION WANTED**

**Experienced, well trained eye, ear, nose, and throat man desires location in North Carolina. Not looking for any salaried position. Would prefer either to take over the offices of someone retiring or to become associated with some well established ethical group. Health excellent, habits temperate, does not drink. Member of Episcopal Church. Able to pay cash for any obligations taken on. Would require some two or three months to dispose of real estate holdings in present location.**

**Address "W"**
**Post Office Box 456,**
**Winston-Salem, N. C.**

# AUXILIARY

## HYGEIA

*Hygeia*, the health magazine published by the American Medical Association, solves the physician's problem of placing a medical subject suitably before a lay audience. Sound health for mind and body is constantly featured.

*Hygeia* has always been of special interest to mothers of young children, as it contains a wealth of information on health habits, food and its preparation, emotional and behavior problems, and aids for sex education of the child. It enlightens people regarding the need of early diagnosis and treatment, the value of periodic health examinations, and the dangers of quackery and self-medication; but it never suggests that the magazine itself replaces the need of a physician's services.

Every physician and dentist should take advantage of the special reduced rates offered to them. The regular price of *Hygeia* is $2.50 for one year, $6.00 for three years. The special price is $1.25 for one year, $3.00 for three years. These rates also apply to doctors' and dentists' wives, and to any gift subscriptions they may wish to place.

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MRS. TAYLOR VERNON
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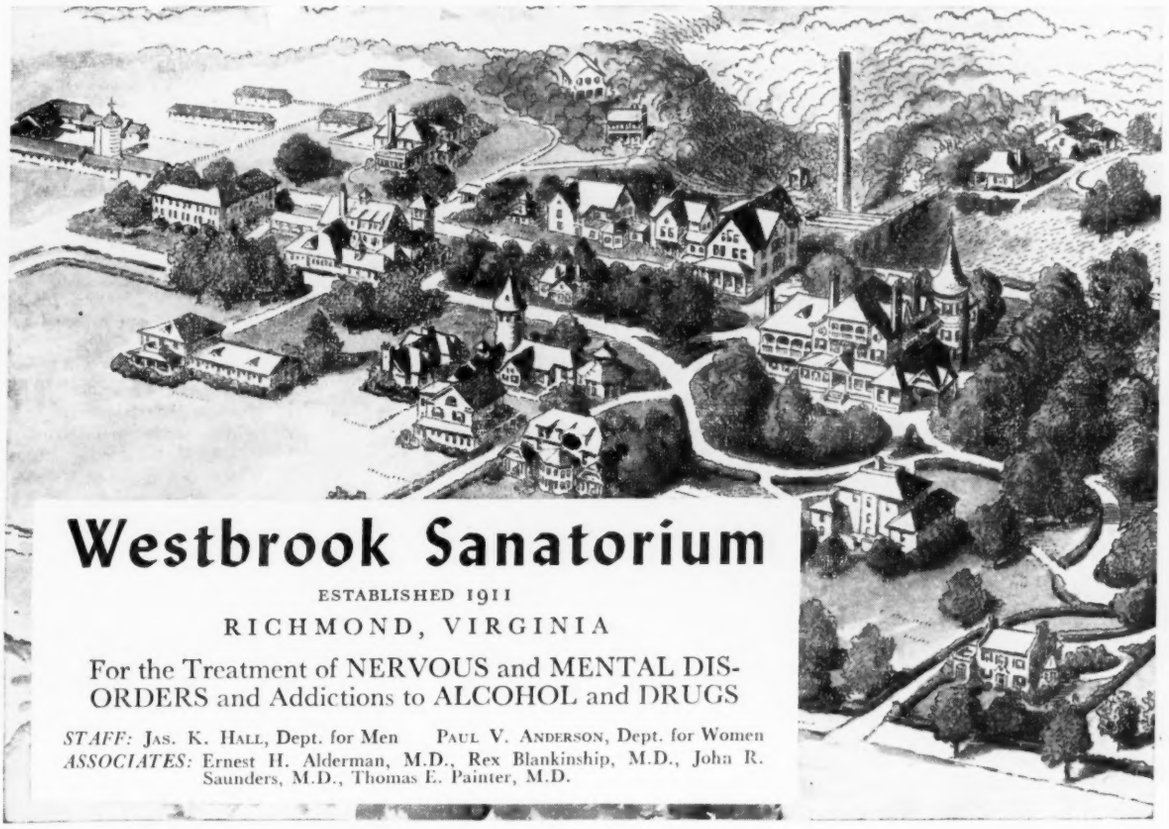

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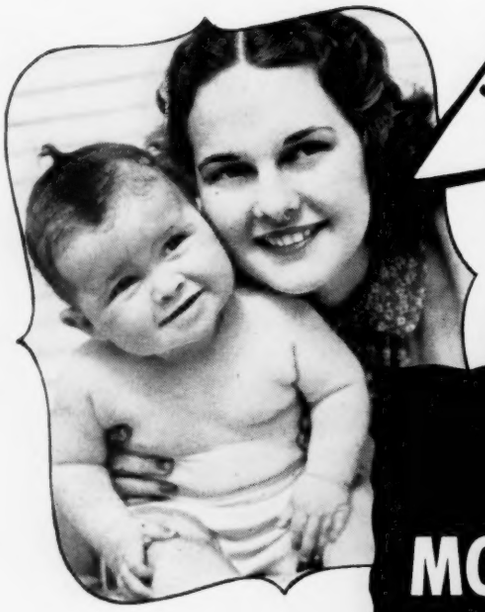

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# BOOK REVIEWS

**Fundamentals of Neurology.** By Ernest Gardner, M.D., Assistant Professor of Anatomy, Wayne University College of Medicine, Detroit, Michigan. 336 pages, with 133 illustrations. Price, $4.75. Philadelphia and London: W. B. Saunders Company, 1947.

This is an excellent short, simple book which discusses the anatomy and physiology of the nervous system. It probably represents the minimum of material that a physician should have at his disposal on these subjects. For that reason it may be of value for one who wishes to review quickly and briefly the nervous system without becoming involved in the detail of the longer texts.

In the preface the author alludes to "nurses, physiotherapists and occupation therapists." From his detailed definitions of such terms as "sagittal and coronal planes," "anatomy," "lesion," and "physiology" it is obvious that he directed the book primarily to these groups rather than to physicians, although the book has been advertised for the use of physicians. Neurologic diseases are not discussed.

The author is to be commended for including at the end of each chapter the names of several pioneer neurologists, anatomists, or physiologists, and giving in a sentence or two their main contributions. There is also a short bibliography with each chapter, and frequently a comment about the reference. This latter would be of great help to a busy student or practitioner in finding references in which he is most interested. It is hoped that this practice will be extended, especially by writers of textbooks.

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**Fundamentals of Psychiatry.** By Edward A. Strecker, M.D., Sc.D., LL.D., Litt.D., F.A.C.P., Professor of Psychiatry, University of Pennsylvania. Ed. 4. 325 pages. Price, $4.00. Philadelphia: J. B. Lippincott Company, 1947.

The three preceding editions of this book have demonstrated its popularity and its value. The edition which was printed in England during World War II was a godsend to medical officers of all allied armies. This fourth edition will continue to be a small Bible for the general practitioner and specialists in other fields. No better authority can be asked at this time.

Its necessary brevity is the main fault that one can find with the book. Dr. Strecker has done a truly remarkable job in condensing so much material into 325 small pages. As one reads the various topics, however, there is always the wish that Dr. Strecker would say more. Certainly there is not enough detail to warrant the recommendation of the book as a fundamental textbook or reference book for medical students or for doctors in training for the specialty of psychiatry.

Omissions of certain facts had to occur in such a condensation. For example, in the discussion of the treatment of paresis, no mention is made of the use of penicillin, although a page and a half is devoted to malarial treatment.

The grouping of psychoneuroses in a chapter with functional psychoses following schizophrenia and paranoid conditions seems unfortunate. Psychoneusoses need to be distinguished from psychoses and deserve a chapter by themselves. Many psychiatrists, too, would not agree with the joint consideration of neurasthenia and anxiety reactions, with only eleven lines given to the symptoms of anxiety neuroses. This is a very important subject for all doctors of medicine. Also, one wishes that more could have been included under the discussion of psychosomatic medicine.

Although the book does suffer because of its brevity, it is an authoritative source and will serve well the busy general practitioner and specialists in branches of medicine other than psychiatry. For students and workers in fields related to psychiatry it is an excellent introductory or reference book.

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**Gifford's Textbook of Ophthalmology.** By Francis H. Adler, M.D., Professor of Ophthalmology, University of Pennsylvania Medical School. Ed. 4. 512 pages, with 310 illustrations. Price, $6.00. Philadelphia and London: W. B. Saunders Company, 1947.

Dr. Adler has made available to the general practitioner and student a most excellent and readily comprehensible review of the common and important ophthalmologic problems. The book is aimed at those readers who do not have extensive knowledge of ophthalmology, and it is admirably suited to their needs.

Like Dr. Adler's other writings, this book is written in a thoroughly simple and lucid style. The discussions of the physiologic fundamentals both in normal functioning and in ocular disorders are clearer and more accurate than those in the larger, more detailed ophthalmologic texts. The section on ocular motility and binocular vision is as simple and readable a presentation of this difficult subject as any this reviewer has seen.

Other particularly excellent sections are those on ocular disorders associated with central nervous system disease and ocular manifestations of general disease. Even the ophthalmologist will find these portions extremely helpful as a concise outline of the important features of these subjects.

The listing of therapeutic agents is especially valuable, since it weeds out many virtually useless but almost traditional drugs used about the eye, and lists the drug houses from which the more useful preparations can be obtained.

Not the least attractive features of this book are its new format, clear print, good illustrations, and convenient size. In the opinion of this reviewer, it is certainly the most valuable and readable of the small textbooks of ophthalmology, and it is heartily recommended.

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**Modern Cosmeticology.** By Ralph G. Harry, F.R.I.C., Certificate of the Royal Institute of Chemistry in the Chemistry and Microscopy of Foods, Drugs and Waters, Pharmacognosy, Pharmacology and Therapeutics. Head of the Cosmetics Department, Beecham Research Laboratories, Ltd. Ed. 3. 515 pages, 9 plates in color, 30 illustrations. Price, $12.00. Brooklyn, N. Y.: Chemical Publishing Company, Inc., 1947.

The author has made an attempt to breach the gap between dermatology and cosmeticology in a work which is primarily intended for the manufacturing trade. Dermatologic principles and considerations are mentioned with respect to each of a wide variety of cosmetics and so-called "beauty aids" which are generally available to the public without

prescription. Some of the topics covered in considerable detail have to do with lipsticks, hair tonics and lotions, face powders, permanent waving solutions, manicure preparations, acne medications, and eye lotions.

There are brief chapters on the anatomy and physiology of the skin, hair, nails, and teeth. It is unfortunate that the colored plates are not up to standard, as they do not show detail. A comprehensive discussion of the chemistry of various emulsion type bases, vanishing cream bases, lubricants, and other vehicles of value to the dermatologist is presented. There is an interesting section entitled "Cosmetic Facts and Fallacies," in which such fallacies as the belief that "crow's feet" can be eradicated by face creams and that certain agents act as "skin foods" are discussed.

This book should prove of value to all dermatologists as an encyclopedia of the constituents of cosmetic preparations. In a like manner it may also be of value to the allergist in his study of specific allergenic components of cosmetic preparations.

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# In Memoriam

## WILLIAM D. JAMES, M.D.

In the passing of Dr. William D. James the Richmond County Medical Society and the fraternity at large lost a valuable addition. The loss of this competent surgeon was peculiarly personal to a host of people whom Dr. James had befriended by his skillful touch and patient ministry.

"Wally" James was endowed by his Creator with many sterling qualities which he cultivated and enlarged. His genial disposition, his "habit of making friends," his athletic prowess in college days and in summer semi-pro baseball gave him a touch that stood him in good stead when the imparting of his spirit to patients proved helpful in supplementing his skillful use of the operating room technique.

Dr. James was a native of Laurinburg, where he attended school in his early days. He was a student at the famous Horner Military Academy in Oxford, and then entered the University of North Carolina, where he began preparation for his career as a surgeon. He graduated from Jefferson Medical College in Philadelphia, and after internship in a New York hospital returned to his native home to embark upon a practice that carried his name and skill into homes all over this section.

After erecting a hospital building in Laurinburg and practicing there for five years, he moved to Hamlet, where he was owner and chief surgeon of a large hospital, the second one erected by his widening practice. Mainly the Seaboard shops attracted the doctor to the enterprising town in which he lived for thirty-two years, and where he died. He was official surgeon for the Seaboard Air Line Railway.

Dr. James was an active member of the Richmond County Medical Society, having served faithfully and well in several official capacities. His help in consultation and practice will ever be remembered by the brothers in the profession. He was a pioneer in the field of cancer and was one of the first to use x-ray and radium for the treatment of this disease. He was called on to conduct cancer clinics in North Carolina and neighboring states, under the guidance of the State Medical Society. In 1927 he was awarded second prize by the American Medical Association for his outstanding cancer exhibit. He acted as secretary of the State Board of Medical Examiners from 1938 to 1944.

With the impact of the spirit of the foregoing, and much else that cannot be put down on paper, but which can only be caught by the contagion of the good man's personality, be it resolved by the Richmond County Medical Society that:

**First:** We have lost a valued friend and associate.

**Second:** We extend to his wife, daughters and son, and other loved ones our sincere sympathy, reminding them that "well roars the storm to those who hear a deeper voice beyond the storm."

**Third:** Copies of these resolutions be sent to Mrs. James, the press of the towns serving our Society, and to the **Medical Journal.**

Resolutions Committee:

T. B. HENRY, M.D., Chairman
R. B. GARRISON, M.D.
Z. F. LONG, M.D.

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## ELLIS H. SPAINHOUR, M.D.

Dr. Ellis H. Spainhour was born in Forsyth County on August 5, 1871. He was graduated from the Baltimore Medical College in 1898, and joined the State Medical Society the same year. Virtually all the rest of his life was spent in the general practice of medicine in Winston-Salem.

In July, 1946, Dr. Spainhour suffered a coronary occlusion. His heart never entirely recovered its normal function, although he did some office practice before his death from congestive failure on December 17, 1947. He is survived by one sister, Mrs. L. E. Hauser, of Pinnacle. He was never married.

Dr. Spainhour was a member of the Calvary Moravian Church, and for many years taught a class in its Sunday School. He was a Mason and a member of the Odd Fellows.

Dr. Spainhour's greatest contribution to medical progress in Winston-Salem was made when he took the leading part in a movement to build the first unit of the City Memorial Hospital on its present site, to replace the frame building, which accommodated only eighteen patients, on Brookstown Avenue. By funds provided for in the will of the late Mr. R. J. Reynolds, and added to by his widow, this unit was later enlarged to its present size. For many years Dr. Spainhour was a member of the visiting staff of the City Memorial Hospital.

Dr. Spainhour was one of those quiet, modest men who never sought the limelight, but who had the genuine respect of everyone who knew him. He was ethical and honorable in his dealings with his colleagues and with his patients. One of the greatest tributes that could be paid any doctor—or any man—came from one of his colleagues, who said that he had never heard Dr. Spainhour say an unkind thing about anybody.

In the passing of Dr. Spainhour the Forsyth County Medical Society has lost a faithful, loyal, and respected member, and the city of Winston-Salem has lost a good citizen.

The obituary committee of the Forsyth County Medical Society recommends that a copy of this memorial be spread upon the minutes of the Society, that a copy be sent to the **North Carolina Medical Journal**, and that a copy be sent to Dr. Spainhour's sister.

JOSEPH F. BELTON, M.D.
VANN M. LONG, M.D.
WINGATE M. JOHNSON, M.D.
Committee on Obituaries